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ORIGINAL LECTURES.

THE TREATMENT OF LUNG CAVITIES.

An Address Delivered before the Lehigh Valley Medical Association, at Easton, Pa., August 15, 1888.

BY THOMAS J. MAYS, M.D.,

PROFESSOR OF DISEASES OF THE CHEST IN THE PHILADELPHIA POLYCLINIC.

THE subject of the address which I have the honor of delivering before you to-day is that of the treatment of lung cavities. I selected this topic because the cavity-condition is so frequently met in every-day practice; and because I believe that the prevailing opinion that the cavity-stage of phthisis has, in most instances, passed beyond the bounds of human control is not only incorrect, but is prejudicial to the interests of both patient and practitioner; and I trust that before I have finished I shall be able to give you reasons for believing that patients thus affected have not necessarily passed beyond the curable stage of this disease, and that they are far better off than those suffering from an infiltration which is bound to lead up to this condition.

Let us now, at the very outset, briefly study the causes which produce and the physical features which accompany a pulmonary cavity. Probably the earliest and most direct cause of this condition, in the great majority of cases, is a proliferation and an accumulation of epithelial elements in the air cells or pulmonary alveoli—the result of a catarrhal process extending down the bronchial tubes.

On account of this rapid multiplication and accumulation of epithelial cells, the small bronchial tubes and air cells become blocked or filled up, and the whole results in a consolidation, or what is commonly called a catarrhal pneumonia. If the process of expectoration of this catarrhal material would keep pace with the rapidity of its formation, neither catarrhal pneumonia nor catarrhal phthisis could ever occur. One reason why bronchitis is a less dangerous disease than pneumonia is the fact that in the former the catarrhal secretion can be readily expelled and an accumulation avoided by the act of coughing; whilst in the latter disease, this secretion takes place so low down in the smallest bronchial ramifications and in the alveolar spaces that coughing rather serves to hinder than to enhance the process of expulsion.

In this condition, therefore, the epithelial proliferation continues, the accumulation goes on, a group of air cells here and another there clogs up and they are bound together in a mass; and the mechanical pressure thus produced gradually interferes with the vascular supply, until finally the whole affected area is entirely cut off from its source of nutrition, viz., the blood. Of course, it is quite readily conceived that if this state of things continue for any great length of time, this isolated spot must perish sooner or later; and this is precisely what happens. The moisture which it contains leaves it by diffusion, the whole becomes a comparatively dry mass of albuminous material, and now begins to undergo a cheesy degeneration. This process is analogous, in every respect, to that which takes place in the manufacture of ordinary commercial cheese. Here it is well known that before the albumen of the milk becomes cheesy, the serum must be separated from it. The cheesy nodule in the lung begins to soften from the centre to the periphery, and so soon as communication with a neighboring bronchus is secured the whole mass is expelled and a cavity is left behind.

These then are the physical features which characterize the evolution of a lung cavity in a large number of cases of pulmonary consumption. So far, the process has been purely inflammatory, and is known as the yellow or pseudo-tuberculous variety of consumption; but during caseation a specific virus is formed, which has the power of generating true tubercle; and while it is true that genuine tuberculosis accompanies and follows excavation, it is also true that it occurs less frequently, and if it does exist, is less extensive, than is usually supposed.

After a cavity is once formed, it pursues one of the following courses: (1) It may retain its original size and continue to secrete pus, and may become lined by a secreting membrane; (2) it may enlarge by further excavation of its walls or by uniting with other cavities in its immediate neighborhood; or (3) its walls may contract and its sides come together and cicatrize.

From a therapeutic point of view, which is our chief object to-day, a pulmonary cavity must be regarded in the light of two cardinal principles: (1) that it, as well as the disease of which it forms a part, is inherently a process of necrosis, or of mortification; (2) that not only its size but its existence depends on the degree of local and constitutional resistance. The growth of a lung cavity may, in all its essentials, be compared to a chronic ulcer of the lower extremity. How often do we see in these affections a conflict between healthy and diseased action? The border-line advances and recedes, making the ulcer appear large at one time and small at another, and this in direct correspondence with the local and constitutional strength or weakness of the patient. Such a course is frequently, if not universally, pursued in the formation and extension of a lung cavity. In some phthisical patients, you find that the lung tissue melts away like snow under the burning rays of a summer's sun; while in others, excavation is but slow to appear, in spite of the persistence of the disease, and if it does make itself felt, the process shows but little tendency to spread. Inquiry will probably always teach us that this difference in the liability of patients to lung cavities is owing to a difference in recuperative powers or in resistibility; that in the former instance, in all likelihood, the patient possessed a strong family history of the disease, together

with a poor appetite and a want of assimilation, while in the other, there was an absence of these conditions.

As a rule, it may be stated that a patient with a quiescent cavity is more desirable for treatment than one who has an infiltrated lung, and who is bound to pass into cavitation sooner or later. The existence of an inactive cavity, or one very nearly so, is a measure of the local resisting power of the surrounding lung tissue—it is evidence that the lung has the strength to limit the process of disintegration. There is precisely the same general condition here as is found in gangrene of an extremity. The formation of the demarcation-line shows that healthy action has successfully antagonized the march of the disease; but before this occurs there is as much uncertainty as to its point of location as there is concerning the probable size of a lung cavity after the process of destruction has once begun.

What now are the special indications which call for treatment in a patient who presents himself before you with a pulmonary cavity? They are (1) fever, (2) anorexia, (3) wasting, (4) harassing cough and expectoration, (5) loss of sleep, (6) diarrhœa, (7) hemoptysis. First in the order of importance comes fever. The degree of fever which is present in these cases depends on the activity of the process of excavation. If this has ceased and the cavity is what may be called an old one, there is very little or no fever; but it can be laid down as a rule that in all cases of phthisis pulmonalis, even in those which show an erratic, subnormal temperature, excavation is followed by a rise of temperature. With pyrexia are associated rigors, loss of weight, increased oxidation, etc. Fever in phthisis, as in fact in all other diseases, has for a long time been regarded as the result of an infective process. Without entering into an elaborate discussion of the causes and mechanism of fever, it may be stated that, according to the latest researches on this question, to which Dr. Isaac Ott, a member of this Association, has added some of the most vital contributions, the phenomenon of fever must be looked upon as one which is brought about by a disturbance of the heat-regulating centre of the nervous system; or, in other words, there is a nervous centre which presides over the evolution and dissipation of bodily heat, the same as there are nerve centres controlling motion and sensation. A disturbance of these latter centres is followed by either pain or muscular spasm, while a disturbance of the heat-centre causes a dissipation of heat. Fever is, therefore, a reflex disorder, and, according to this theory, the elevated temperature which accompanies pulmonary inflammation and excavation is due to irritation of the thermogenic nerve-centre and a consequent disturbance of the equilibrium between heat-production and heat-loss of the body.

There is little doubt, too, that the pyrexia of pulmonary phthisis is best controlled by agents which act solely through the nervous system, and this in itself is a strong confirmation of the neurotic theory of fever. Morphine, chloral, potassium bromide, chloroform and ether abolish pain and suppress muscular spasm by diminishing the impressibility of the centres of sensation and of motion. A number of our recently discovered antipyretics, such as antipyrin, antifebrin and phenacetin, bear an analogous relation to the process of fever. They reduce fever simply through their powerful influence on the nervous system.

Now all these antipyretics play an important *rôle* in the treatment of phthisical fever, yet, according to my own experience, which has been, however, rather limited so far as phenacetin is concerned, I think preference must, on the whole, be given to antipyrin. It is very soluble in water or in any aqueous vehicle, is very palatable and is therefore readily administered, which cannot be said of the other two agents. The objections to it are its expensiveness and its tendency to produce erythema of the skin in some cases if given for a protracted period. One thing must be borne in mind while giving these agents, and this is, that the ordinary small doses which are recommended, and which are usually large enough to affect the fever of acute diseases, are of very little use in the chronic fever of pulmonary phthisis. Ten or fifteen grains of antipyrin and eight or twelve grains of antifebrin or of phenacetin, every three or four hours, are small enough doses for a beginning, and must frequently be increased, probably doubled, before the fever is permanently subdued.

There can be no doubt that, aside from their antipyretic action, these agents, in virtue of their affinity for the nervous system, also exert a marked tonic influence on the whole body. In saying this I am not unmindful of the fact that when given for the purpose of lowering temperature in ordinary acute fever, they are liable to bring about sweating and depression, and at times produce a condition simulating collapse. It is needless to say, however, that such a state of affairs should never be provoked in phthisis, and furthermore that the reduction of fever can generally be secured without pushing the action of these agents to such an extreme point.

In consonance with the view that the fever of phthisis is, in some measure at least, due to the absorption of pus and other deleterious material from pulmonary cavities and bronchial tubes, the surfaces of which are in a state of catarrhal inflammation, various antiseptic agents and methods have been devised and proposed for the purpose of combating this infective fever. Medicines have been given by inhalation, by the mouth, by subcutaneous injection, as well as by enema, with this end in view; and while there can be no doubt that disinfectants applied in these ways exercise a beneficial influence on the fever, it is a question whether they do it by a process of antisepsis or by checking the local inflammation in the lungs. Among the agents which probably yield the best results when given by inhalation are ichthyol, carbolic acid and terebene. Personally I can recommend ichthyol, administered through a respirator, in the strength of a twenty-five per cent. aqueous solution. This agent is especially useful in bronchorrhœa and in actively secreting cavities, the profuse expectoration in such cases becoming remarkably diminished in a very short time.

Equal in importance to the reduction of fever is the problem of alimentation. Nothing gives rise to greater anxiety in the treatment of pulmonary phthisis than the persistent loss of appetite and wasting, nothing taxes the ingenuity of the practitioner more, and nothing demonstrates his ability better than his success in devising ways and means whereby his patient is led to partake of a sufficient amount of nourishment. This constant tendency to waste, without any effort at repair, is so great that one may be led to suspect that the real disease resides in the digestive and not in the respiratory organs. The stomach is, therefore, one of the principal battle-grounds on which the destiny of the patient has to be

fought out; and it may be laid down as a law that, if a patient improves in every respect save in eating, he must still be regarded as in a retrogressive state.

The task of making a patient eat, and frequently against his own will, is a very arduous and delicate one, but it can usually be carried out successfully, if sufficient tact is displayed by both practitioner and nurse. System, promptness and perseverance will accomplish much. A little food at regular intervals, and oft-repeated, will furnish a patient a large amount of nourishment in twenty-four hours, and will convince him that he has the power to ingest a great deal more than he thought he had. I have seen patients who, absolutely refusing all kinds of food, by persuasion, would take a glassful of milk, either cold or hot, every hour and a half or two hours, which gave them nearly two quarts of milk a day; and so soon as their confidence in their digestive capacity was restored in this way, they began to partake of other foods.

Another important feature in the dietary of a consumptive is variety. In this particular, more depends upon a good cook than on the physician or nurse. She must be dextrous and be able to render the bill of fare as tempting and as enticing as possible. The consumptive should not know in advance what the table has in store for him, so that he is not allowed sufficient time to manufacture excuses for not eating certain kinds of food. He always eats best when he is surprised by some new and inviting dish. He should also be permitted to eat anything for which he has a craving, unless it is known to be positively injurious.

In feeding these patients, it is frequently found that the first meal in the morning is vomited. This is generally due to the violent coughing efforts which are required to expel the cavity-accumulations of the previous night. This annoying factor can be overcome in most cases by asking the patient to eat nothing until the coughing paroxysm is over and the cavity cleaned out, or, if it is necessary to eat, to partake only of milk, soup, brandy or liquid food, in tablespoonful doses at intervals.

Now what kind of foods ought such patients to have? Clearly those which contain the greatest amount of food energy in the smallest bulk, and which at the same time confer the greatest amount of good on the body with the least expenditure of vital force in their digestion. Foremost among these are beef, broiled, roasted, rare or scraped; roasted lamb or mutton; eggs, raw or soft boiled; butter, cream, milk, oatmeal, beef-tea, soups, milk-punch, whiskey, brandy, wine, beef peptonoids, malted milk and other malt preparations. On the other hand, many other less nutritious foods and condiments, such as asparagus, lettuce, celery, green peas, tomatoes, potatoes, coffee, tea, chocolate, oils, spices, pepper, salt, vinegar, etc., should be admitted to the list. Meals should be served at regular intervals, five or six times a day, and the food should be slowly and thoroughly chewed before it is swallowed. Dinner taken in the middle part of the day should be the heaviest meal, and the last one at night should be the lightest one.

Feeding by the rectum is a method which deserves greater consideration in the treatment of pulmonary phthisis than it has so far received. In spite of theoretical objections, there is no question that, practically, the food which is placed in the lower bowel is digested and absorbed. This method not only economizes the strength of the stomach, but I have seen it counteract the tendency to diarrhœa which exists in many of these cases. For this purpose milk, eggs, beef essence, Valentine's meat juice, the pulp of raw fresh beef may be used. To the eggs and beef a small amount of pepsin may be added. The fluid foods are injected, while those of a semi-solid nature are best given in suppositories. One of the best ways to supply food by the rectum is to obtain hollow suppositories large enough to contain half or a whole teaspoonful of raw scraped beef-pulp, with a little pepsin, and administer them three or four times a day.

So far as medicinal treatment is concerned, much can be done to arouse and restore the digestive power of the patient. A pressure and fulness in the gastric region, associated with sour eructations after eating, is very often relieved by eight or ten drops of dilute phosphoric or of dilute nitro-muriatic acid in a glassful of hot water, after meals, or the same acids in combination with the compound tincture of cinchona, gentian and cardamom, or tincture of nux vomica, before meals.

In the next place, what can be done to quiet the distressing cough and expectoration which accompany the cavity-condition? It will, of course, be understood that the measures which have already been proposed for the reduction of fever and for the improvement of the appetite do indirectly alleviate the cough and expectoration. Cough itself is but a symptom which represents the degree of irritation wrought by the congestion, inflammation and the accumulation of catarrhal material on the terminals of the pneumogastric nerves, and anything which removes these offending causes or reduces their influence to a minimum will also ease the cough. In such a state of irritability, nothing is so soothing as the application of a large flaxseed-meal poultice to the chest. The patient soon experiences greater freedom in breathing, his cough becomes easier, the expectoration looser and a general improvement in the local condition follows. If the cough is troublesome at night, one grain of codeia can be given at bedtime, with $\frac{1}{100}$ of a grain of atropia if there is much sweating, and repeated in two or three hours if necessary. The morning cough, which persists until the cavity is cleared out, can be very much facilitated by teaching the patient to bend his head as low as possible, as if he were in the act of tying his shoes, or by asking him to go on his hands and knees, with the head lower than the buttocks. These positions, although not very æsthetic, give the law of gravity a chance to aid in the expulsion of the offensive cavity contents.

Hemoptysis is another and, sometimes, a very important and urgent symptom in the treatment of pulmonary phthisis. When I say it is important, I do not judge it so much from a material as I do from a moral standpoint. There is nothing which disturbs a patient's mental equanimity more than the spitting of blood. Its depressing effect is incalculable, yet really in ninety-five cases out of every hundred this symptom must be looked upon as a benefit rather than an injury—a relief to the congested part whence it comes, rather than a detriment to life. In the slow progress of cavity-formation, the larger bloodvessels become obliterated and disappear in the common ruin of the implicated part, and, as a rule, it is only those capillaries exposed on the surface of the excavation, similar to those often observed on the raw surface of chronic ulcers, which give rise to the bleeding. Occasionally, however, as in the rupture of an exposed aneurismal bloodvessel or in

what may be called a hemorrhagic diathesis, hemoptysis becomes, indeed, an alarming symptom; but these are the exceptions. In treating hemoptysis, give the patient as much encouragement as you possibly can. You can tell him, with perfect truthfulness, that bloodspitting is always to be expected in such a disease, that in the great majority of cases it must be regarded as a vent of nature to unload the overloaded and congested bloodvessels, and that under these conditions it is of no serious significance. Internally, give the fluid extracts of hamamelis and geranium—one part of the former to three of the latter—in teaspoonful doses every hour or two, or oftener if necessary. These agents seem to have a special control over venous hemorrhage, and they exert their styptic influence entirely independently of the tannic acid which they contain. They do not, as a rule, produce constipation, but, on the contrary, I have seen diarrhœa follow their use, which would hardly occur if their action were due to tannin; and I can further say that they succeeded in some cases in which tannic and gallic acids and ergot had failed. You will find this combination useful, too, in the hemoptysis which accompanies the early stage of the disease. Of course, if the bleeding proceeds from a large bloodvessel, absolute rest and the recumbent position must be enjoined, and ice be applied to the chest.

Last but not least in importance in treating this condition comes pulmonary gymnastics. Objections are frequently urged against this mode of expanding the lungs after cavities exist, for fear of exciting hemorrhage. While it must be admitted that this objection is not entirely without foundation, yet practically it is shown that the danger is exceedingly limited, and that the benefit which the method confers on the patient does more than compensate him for the risk which he at first incurs. It is certainly indicated. The secret why so many consumptives, even in the cavity-stage of the disease, experience such a great relief when they resort to high altitudes is that their lungs, which are habitually inactive, either from the want of exercise or from being impaired by deposits, are now immersed in a highly rarefied atmosphere which throws every available lung space into action, in order to supply the needed amount of oxygen to the body. The air cells become fully inflated, and if the products of inflammation are not dispersed, the surrounding lung tissue is kept permeable and the disease is at least kept in abeyance. Very few of these people suffer from hæmoptysis. This method of forcibly inflating the air passages of the lungs is precisely the same in principle as that which is so effectually employed by aurists in opening and in maintaining the patency of the Eustachian tube. This channel is not only made permeable by such a procedure, but its inflamed and swollen mucous membrane is restored to a more normal condition. Have we not, therefore, tangible ground for believing that that which does good in one case will also be of benefit in the other?

The breathing of compressed and of rarefied air must, therefore, be regarded as an important addition to the therapeutics of pulmonary consumption. A very simple apparatus by which air is prepared for this purpose is found in the machine with two double cylinders. With this, the patient can alternately inhale compressed and exhale into rarefied air at the same sitting. When air is breathed in this manner, there is felt during inspiration a gentle fulness and distention of the chest-cavity, while during expiration a feeling of emptiness is experienced. Waldenburg states that in this way from fifty to two hundred and fifty cubic inches more air can be inspired than during ordinary breathing. This should be done four or five times a day, or oftener if necessary, to produce the desired results.

In connection with the inhalation of compressed air, bodily exercise and forced voluntary breathing are to be highly recommended. The power of walking is common to most people, and this form of exercise is regarded of great service, even by those who exclusively advocate the high altitude treatment. Dr. Brehmer, of Görbersdorf, was, I believe, the first to prescribe for consumptives walking up a gradual ascent. A walk of half an hour or an hour, twice daily, either on the level or on a slight upward grade, is of great benefit. There are also many forms of exercise which may be carried on indoors, those performed by the arms being the most important. The arms, used as levers, are swung backward as far as possible, on a level with the shoulders, during each inspiration, and brought together, in front, during each expiration; or the hands are brought together above the head, during inspiration, and gradually brought down alongside the body, during expiration. When a deep breath is taken in accordance with either plan and held until the arms are gradually moved forward or downward, or even much longer, the process of chest expansion becomes materially enhanced. Another very effective chest exercise is to take a deep inspiration, and during expiration *only* to count in a loud voice as long as possible. A male person, with a good chest capacity, can count up to sixty or seventy, while in a female, even with good lungs, this power is somewhat reduced. Practice of this sort develops lung capacity, and the increased ability to count longer is a means whereby the improvement going on within the chest can be measured. The effects of many of these movements may be facilitated by the use of dumbbells and of chest weights.

The subject under review is a very large one, and I might and probably should have dwelt at greater length upon other methods and remedies, many of which are no doubt of much value; but my aim has been to lay only those points of treatment before you which I have tested, and which I can conscientiously recommend, and in doing this, I hope that I have been fortunate enough to impress upon you the conviction that the treatment of phthisis after it has passed into the stage of excavation is not such a formidable undertaking, is not beset by so many drawbacks as it is usually supposed to be; and I furthermore trust that I have succeeded in giving contagiousness to the feeling that no case of phthisis, unless actually moribund, should be treated with that masterly indifference which has hitherto been maintained by the profession toward this class of sufferers.

ORIGINAL ARTICLES.

A CASE OF ABSENCE OF THE VAGINA; OPERATION.

BY ARCH. DIXON, M.D.,
OF HENDERSON, KY.

EARLY in April of the present year, Miss A. L., of Webster County, Ky., aged seventeen, applied to

Dr. P. H. Griffin for relief from difficult and painful micturition. The statement of the patient was that for a long time she had been troubled in this way, the urine being voided with the greatest difficulty, it requiring from half an hour to three-quarters of an hour to empty the bladder. She had never menstruated, but had suffered with headache, pain in the back and loins, at intervals, for two years, with an occasional discharge of a few drops of bloody fluid. Examination was made by Dr. Griffin, and the discovery made that there was entire absence of the vaginal outlet; nor could any meatus urinarius be found. The same day, I saw the patient, who was a well-formed girl, of medium height and weight. The mammary glands were well developed, the pubis was covered with a rather luxuriant growth of hair, the vulva had a normal appearance, at its upper extremity the labia majora becoming attenuated an inch and a half below the pubis into a flat, smooth surface, having a cicatricial appearance. There was a rudimentary clitoris, but close inspection revealed no outlet, either urethral or vaginal. Examination per rectum demonstrated the existence of ovaries and uterus, the latter being somewhat enlarged and globular in shape.

Operation was proposed and accepted. April 17th the patient was etherized and placed in the lithotomy position; a very careful examination failed to disclose the meatus urinarius. With manipulation above the pubis and through the rectum, the bladder was compressed by Dr. John Young Brown, who succeeded in forcing a drop or two of urine through an opening so small that it was with difficulty that a very small myrtle-leaf probe could be passed into it; this was, however, accomplished, and the meatus and urethra gradually dilated until a sound could be passed into the bladder. With the index finger of the left hand in the rectum, on approximation, the tissue between the sound in the bladder and the finger was apparently not thicker than the vesico-vaginal tissue is usually found; there was no trace of a fibrous cord nor of anything indicating that a vagina had ever existed; the uterus could be distinctly felt. With the knees flexed upon the abdomen, the skin was snipped between the meatus urinarius and the anus for about an inch and a half. With the index finger of the left hand in the rectum, and the sound in the bladder for a guide, with the index finger of the right hand I rapidly succeeded in making an opening between the bladder and rectum, to the depth of three inches, when the uterus was reached; this opening was then enlarged laterally and was lengthened perhaps an inch or more, but as there had been some indication of a menstrual flow in the bloody discharge from the meatus, it was deemed best not to proceed further with the operation at this time, but to wait for the appearance of the menses, and, should they appear at the now dilated urethra, to take further steps, as might be deemed necessary. A glass plug (Sims) was placed in the newly made vagina and confined there by a T-bandage. The dilator was removed and the opening subjected to daily irrigation with carbolized water; the bladder was emptied daily by catheter.

Very little, if any, disturbance followed the operation; there was slight rise of temperature (99°) during the first three or four days, and at the end of two weeks the patient was permitted to leave her bed, with instructions to remove the plug daily and continue the irrigation. Orders were left with the nurse to inform me at once should any bloody discharge take place. On May 17th there was epistaxis with slight hematemesis, the latter due, no doubt, to the patient having swallowed the blood as it passed into the pharynx through the posterior nares; pain in the back, loins and hypogastrium was complained of, which lasted till the 21st, when a drop or two of dark blood made its appearance at the meatus. Uterine contractions were severe. The right index finger was passed into the vaginal opening and supra-pubic pressure made with the left hand; the uterus could be felt to descend and a few drops of blood were forced out through the urethral opening. A catheter was passed into the bladder and a careful search around and in the meatus revealed a minute opening at its lower border; into this a filiform bougie was carefully passed until it reached the uterus; this was followed by a uterine sound and an attempt at dilatation made, but with pain so severe that it was decided to anæsthetize the patient and proceed to dilate the canal. The opening at the lower border of the meatus yielded badly, and its lower edge was clipped with scissors and torn down with the finger; the canal was then dilated with sounds until the index finger was admitted and the cervix uteri was reached. Further dilatation was made until a Sims glass dilator would pass, pressing down the posterior tissue of the canal until the opening previously made was almost entirely closed. The retained menstrual fluid was discharged gradually for several days, when, under rather severe uterine contractions, a large discharge of black, tarry-looking blood, filled with clots, took place, since which time there has been a general improvement in the condition of the patient and she expresses herself as delighted with the ease and comfort with which she empties her bladder, and, as she expressed it, "being now made like other women."

REMARKS.—The foregoing case was certainly a remarkable one in many respects, and the error committed in the management of it seems to me to be a justifiable one. After the sound was introduced into the bladder, a presumably careful and sufficient examination was made, and the conclusion arrived at that the vagina was absent and that an operation should be made. This opinion was concurred in by three other physicians. The sound glided into the bladder, as did the catheter, giving no sign of an opening save that of the urethra, nor was any suspected by me, for I gave no credence to the escape of menstrual fluid through the meatus urinarius, and should have proceeded to empty the uterus at one operation had it not been deemed best, under all the circumstances, to wait. Emmet, in speaking of such cases, says:

"The external portions of the organs of generation are generally well formed, but on exposing the vulva, the

orifice of the urethra will be found rather lower than natural, and at the bottom of a shallow sulcus, and there will be no appearance of a vaginal outlet. In absence of the vagina, the urethra is always unnaturally relaxed, but the power of retention of urine remains unimpaired."

In this case the external parts were not well formed, there was no perceptible urethral orifice, and it was only after the closest search that it could be found at all. The tissue, from the meatus to the anal orifice, was firm and smooth, with no suspicion of a vaginal outlet.

The same author further says, in regard to diagnosis:

"In congenital absence of the vagina, only a shallow sulcus is present between the labia. Some aid may be gained for forming a diagnosis from the thickness of the septum between the bladder and the rectum, and this is to be ascertained by means of a finger in the rectum and a sound in the bladder. In the congenital form, the septum will be found as thin as the recto-vesical one in the male, since there has been no development of the muscular and other tissues forming the vaginal wall. But after the vagina has been once formed and the uterus has for a while performed its functions, the vaginal wall will remain, after accidental occlusion, even thicker than before, so that there will be little difficulty in forming an opinion, even if the presence of the urethra could not be detected. Under ordinary circumstances, there can be but little difficulty in forming an accurate idea of the true condition. In the absence of a vagina, with accumulation, the condition might be complicated by the occurrence of a hematocele, or a collection of pus in the pelvis, but a careful investigation of the case will remove all such difficulties of diagnosis."

In the case under consideration there was only a shallow sulcus between the labia. With a sound in the bladder and a finger in the rectum, the septum between the bladder and rectum did not seem to be thicker than the recto-vesical septum in the male; there appeared to be an entire absence of the muscular and other tissues forming the vaginal wall; the uterus was present and enlarged, evidently from accumulation, as there was no complication in the case. Under all the circumstances, I repeat that the error committed in the management of the case seems to me to have been justified. The girl is now well and her last menstruation was normal.

HENDERSON, KY., July 9, 1888.

INFLATION OF THE STOMACH WITH HYDROGEN GAS IN THE DIAGNOSIS OF WOUNDS AND PERFORATIONS OF THIS ORGAN, WITH THE REPORT OF A CASE.

BY N. SENN, M.D., PH.D.,
OF MILWAUKEE, WIS.,
ATTENDING SURGEON TO THE MILWAUKEE HOSPITAL, PROFESSOR OF THE PRINCIPLES OF SURGERY AND SURGICAL PATHOLOGY IN RUSH MEDICAL COLLEGE, CHICAGO, ILL.

IN my paper on "Rectal Insufflation of Hydrogen Gas as an Infallible Test in the Diagnosis of Visceral Injury of the Gastro-intestinal Canal in Penetrating Wounds of the Abdomen," read in the Surgical Section of the American Medical Association, I incidentally called the attention of the medical profession to the value of inflation of the stomach as a diagnostic measure in cases of injury or perforation of this organ, in that part of the paper which referred to inflammation of the alimentary canal through the stomach tube. We should naturally expect that the alimentary canal could be inflated with more ease and with a less degree of force by following the normal peristaltic wave. That this is not the case will be seen from the following experiments:

EXPERIMENT VII.—Dog, weight 40 pounds (18 kilograms). After complete anæsthesia was effected, a flexible rubber tube was introduced into the stomach and the free end connected by means of a rubber tube with a four-gallon rubber balloon, containing hydrogen gas. Between the gas reservoir and the stomach-tube a manometer was interposed, registering accurately the force used in making the inflation. The inflation was made by compressing the rubber bag. A tube was introduced into the rectum to facilitate the escape of gas that might reach this portion of the intestinal tract. Under a pressure of one pound and a half the stomach dilated rapidly, and later the entire abdomen became distended and resonant on percussion, but no gas escaped per rectum. When the pressure was increased to two pounds (one kilogram) no further distention of the abdomen took place, as the gas escaped along the sides of the stomach tube. At this time respiration became greatly embarrassed, but was relieved on allowing gas to escape through the stomach tube. On compressing the abdomen firmly the distention disappeared almost completely; at the same time a large quantity of gas continued to escape through the stomach tube. Inflation was renewed, and under a pressure of one pound and a half the abdomen again became uniformly distended. When the pressure was increased to two pounds (one kilogram), the dog suddenly died and all efforts at resuscitation failed. On opening the abdomen the stomach was found enormously distended, reaching three inches below the umbilicus, and occupying almost the entire abdominal cavity. The upper half of the small intestine was distended; numerous points of sharp flexions were found among the different distended coils. The distended stomach had evidently encroached so much upon the abdominal space as to render the greater part of the intestinal canal impermeable by pressure.

EXPERIMENT VIII.—Dog, weight 15 pounds. After the animal was placed fully under the influence of ether, the abdomen was opened and the cæcum and lower portion of the ileum drawn forward into the wound, and a large needle of an aspirator inserted into the ileum just above the ileo-cæcal valve. Through a rubber tube hydrogen gas was forced into the stomach. Under one pound (five hectograms) of pressure the stomach and upper portion of the intestines dilated readily. When the force was increased, the gas returned through the œsophagus along the sides of the stomach tube.

EXPERIMENT IX.—Dog, medium size. This animal was killed to ascertain the results of an experiment

made for another purpose. Rubber balloon, containing hydrogen gas, and manometer were used for making the inflation. The tube through which the inflation was made was tied in the œsophagus. The abdomen was distended enormously, and on increasing the pressure to 3¾ pounds (1½ kilograms) still no gas escaped through the rectal tube. The abdomen was then opened, when the stomach was found so enormously distended that it filled almost the entire abdominal cavity. About one-fourth of the length of the small intestine was found distended, and among the distended loops numerous acute flexions could be seen. After the abdomen was opened, under long and continuous distention, the peritoneal covering of the stomach gave way, when the manometer registered only one pound and a half of pressure.

EXPERIMENT X.—Dog, weight 18 pounds (8 kilograms). Immediately after death the œsophagus was isolated and the tube of the hydrogen gas inflator securely tied in, and a glass tube was inserted into the rectum. Under a pressure of 2¾ pounds (1.2 kilograms), registered by the manometer, the gas first dilated the stomach and then passed along the intestine until it escaped in a steady stream through the rectal tube, when it was ignited. On opening the abdomen the stomach was found greatly distended, while the distention of the intestines was a great deal less marked. None of the tunics of the stomach or intestines was injured.

EXPERIMENT XI.—Dog, weight 20 pounds (9 kilograms). Animal etherized and a flexible tube connected with the gas inflator introduced into the stomach and a glass tube into the rectum. On inflation the stomach became gradually distended, and when the pressure had reached 1½ pounds (0.6 kilogram) the dog vomited and a good deal of gas escaped at the same time. Inflation was again commenced and was followed by uniform distention and tympanites over the entire abdomen; when the pressure reached 2½ pounds (1 kilogram) the gas escaped from the rectum, and when ignited burned with a steady, blue flame. The experiment was followed by no unfavorable symptoms.

EXPERIMENT XII.—Dog, weight 12 pounds (5½ kilograms). Under the influence of ether, inflation with hydrogen gas, in the same manner as in the last experiment. As soon as the stomach became well distended and the manometer registered 1½ pounds of pressure, vomiting occurred, attended by a free escape of gas, which was followed by collapse of the distended epigastric region. When inflation was again resumed, it was noted that any increase of pressure over 1 pound (0.45 kilogram) was followed by regurgitation of gas, and, on this account, it was found impossible to inflate the lower portion of the intestinal tract. No unfavorable symptoms followed the experiment.

EXPERIMENT XIII.—Dog, weight 28 pounds (12½ kilograms). Under the influence of ether, inflation with hydrogen gas through a stomach tube. As soon as the pressure was increased to more than 1 pound (0.45 kilogram), the gas escaped along the sides of the tube through the œsophagus; consequently only the upper portion of the abdomen could be distended, and the inflation evidently did not extend much beyond the stomach. The experiment was repeated several times, with the same result. The animal remained perfectly well after the experiment.

EXPERIMENT XIV.—Dog, weight 12 pounds (5 kilograms). Inflation of stomach with hydrogen gas under full anæsthesia. The effect of the inflation was the same as in the last experiment, only the stomach and upper portion of the small intestine could be distended, and further inflation was impossible, as the gas escaped from the stomach as soon as the pressure exceeded 1 pound (0.45 kilogram). A large needle of an aspirator was passed through the linea alba into the stomach, and the gas which escaped through it, on being lighted, burned with the characteristic blue flame. After the needle was withdrawn, the inflation was continued, to ascertain if the puncture in the stomach would allow the escape of gas into the peritoneal cavity. The inflation was continued until the entire abdomen was distended by the gas. That the distention and tympanites were due to the presence of gas in the peritoneal cavity became evident, as they remained after the stomach had been emptied of its gas, and, on percussion, it was ascertained that the entire liver dulness had disappeared. The dog recovered without symptoms of peritonitis or any other ill effects from the experiment.

These experiments demonstrate conclusively that it is more difficult to inflate the alimentary canal from above downward than from below upward, as in the living animal I succeeded in only one instance in forcing hydrogen gas from the mouth to the anus, while in others a degree of force sufficient to rupture the peritoneal coat of the stomach only effected distention of the stomach and upper portion of the intestinal canal. It is evident that great distention of the stomach constitutes an important factor in causing or aggravating intestinal obstruction, as it effects compression, which again causes impermeability of the intestines, or aggravates conditions arising from an antecedent partial permeability, by producing sharp flexions among the distended coils of the intestines.

For diagnostic and surgical purposes, the stomach can be readily inflated almost to any extent through a stomach tube, and when it becomes necessary to ascertain the presence of a visceral wound or perforation of this organ, this method of inflation may be resorted to with advantage.

I have recently had an excellent opportunity to apply this test in a case of gunshot wound, of the chest and abdomen, in which, without it, it would have been impossible to make a correct diagnosis. The insufflation made the diagnosis positive, and the information obtained from it justified the treatment by laparotomy, although the general symptoms were so grave that it appeared doubtful if the patient would live long enough to complete the operation.

C. H., a man, seventy-two years of age, brought to the Milwaukee Hospital by the police patrol, at

7 A.M., July 9, 1888, for a suicidal, bulldog pistol (44-calibre) wound of the chest, inflicted about two hours previously. Pistol held in the left hand, as ascertained from the patient and confirmed subsequently by examination of the direction of the bullet. The patient stated that he had pointed the pistol toward the heart.

Examination, 7 A. M. Wound of entrance situated in the left sixth intercostal space, surrounded by emphysema. Seventh rib fractured at junction of cartilage and bone. No wound of exit. Patient conscious; complains of severe pain in the epigastric region, increased by pressure. Pulse rapid and weak. Vomits and expectorates blood. Area of liver dulness diminished. Percussion and respiratory sounds normal. No evidence of hemo- or pneumothorax.

9 A. M. Flexible tube introduced and stomach inflated with hydrogen gas from a four-gallon rubber balloon. Inflation effected by continuous pressure on the balloon. Gas escaped and ignited at the wound of entrance with an audible sound. Field of operation thoroughly disinfected. Patient etherized and laparotomy made by incision from the ensiform cartilage to the umbilicus. The omentum and stomach were drawn forward into the wound. A large perforation, about one and a half inches in length (due to the oblique direction of the bullet), was found in the stomach, midway between the pylorus and the cardiac end on the greater curvature. Stomach partially filled with coagulated blood. With the index finger introduced through this perforation, another was detected on the lesser curvature and near the cardiac end. The omentum, which was adherent to the colon, was torn through and exploration of the posterior surface of the stomach failed to reveal the old site of the second wound which was felt by the digital exploration of the interior of the organ. The blood-clots were removed from the stomach by irrigation through the lower wound.

For the purpose of locating with accuracy the second wound, the stomach was inflated through the bullet wound on the anterior surface with hydrogen gas, the escape of which made it easy to locate the second wound. The omental opening was enlarged by tearing and the perforation was discovered on the posterior surface at the lesser curvature and close to the cardiac orifice. Great difficulty was experienced in dragging the stomach sufficiently forward and downward into the abdominal incision to enable me to suture the perforation, which was two inches in length. It was closed by a continuous Lembert suture of silk, the anterior wound by a Czerny-Lembert suture.

Considerable blood was found behind the stomach, in the region of the pancreas. The hemorrhage had evidently taken place from lacerated vessels of considerable size at both perforations as well as from vessels in the pro-peritoneal space. Probable direction of the bullet from above downward, backward and to the right. At this stage collapse from shock and hemorrhage supervened. The body was partially inverted and a saline infundation of fifteen ounces of a six-tenths per cent. salt solution performed. Brandy was injected subcutaneously and faradic current applied to phrenic and pneumogastric nerves without any apparent effect. Death occurred before the abdominal wound could be closed.

The abdominal incision was sutured and inflation of hydrogen gas, per rectum, made to test the condition of the sutured stomach. A stomach tube was introduced and the gas, under a pressure of not more than a pound, forced through the entire gastro-intestinal canal, igniting and burning with a continuous flame as it escaped from the end of the stomach-tube, which showed that no gas escaped through the sutured wounds. Post-mortem was made immediately. Wound of entrance in the sixth intercostal space, seventh rib fractured at junction of cartilage and bone, both pleural cavities obliterated by adhesions, margin of lower lobe of left lung perforated, pericardium intact, lacerated opening in diaphragm admitting two fingers. Perforations in stomach as described. Liver and spleen not injured, upper margin of tail of pancreas lacerated. Bullet passed to left of the aorta, entered the left crus of the diaphragm, fractured the last rib at the neck and perforated the spinal column, entering between the last dorsal and first lumbar vertebra, escaping through the body of the latter and fracturing its right transverse process. Bullet found in the subcutaneous connective tissue of right lumbar region. The spinal canal was opened by the bullet in its passage through the vertebra, and loose fragments of bone lay in the canal. The membranes of the cord were intact and the cord itself uninjured.

The location of the wound of entrance in this case did not indicate that the bullet had entered the abdominal cavity unless the revolver was held in the left hand; in that case, as it was directed toward the heart, the track of the bullet would be necessarily downward, backward and from left to right. Taking it for granted that the bullet took this direction it would still have been possible for the stomach to escape injury. The circumscribed emphysema around the external wound and the hemoptysis, as well as the location of the wound, left no doubt that the lower lobe of the lung was injured. The absence of hemothorax and pneumothorax was explained by the post-mortem, as the left pleural cavity was found completely obliterated by adhesions. Under a pressure of not more than half a pound to the square inch, the hydrogen gas was forced through the external wound where it was lighted and burned in a large continuous flame until it was extinguished by compression with a large moist sponge. Very little gas was found in the peritoneal cavity.

In perforation of the stomach without an external wound, inflation of the organ with hydrogen gas will render the abdomen universally tympanitic, as the gas will escape into the peritoneal cavity and, as it always occupies the highest plane, on account of its low specific gravity, it will push the abdominal organs backward, and thus it happens that the liver dulness disappears completely, which fact alone, if established, makes the diagnosis of perforation posi-

tive, unless the organ is fixed in its place by peritoneal adhesions, the result of a previous peri-hepatitis.

In cases of perforating ulcer of the stomach or duodenum, if this simple diagnostic measure is resorted to in time, it will prove the means, by prompt surgical treatment, of saving many a life that has hitherto been sacrificed under the expectant plan of treatment.

It has been claimed that hydrogen gas is objectionable for purposes of inflation, as when it is mixed with a certain proportion of oxygen or atmospheric air it forms an explosive compound. Against this argument I can say that no accidents of any kind have occurred during any of my numerous experiments on animals, nor in the few cases in which it has been applied in practice. Hydrogen gas has the lowest specific gravity of all the gases known, and on this account, as well as from its non-toxic qualities, it should always be preferred to other gases and atmospheric air, simple or medicated. The hydrogen gas test appeals both to the sense of sight and hearing, if successful in cases of perforating wounds. The preparation of the gas is so simple and rapid that its use is applicable not only in hospital and city but also in country practice.

I have recently been able to make a correct diagnosis in several cases of obscure abdominal tumors, by resorting to stomach and rectal inflation of hydrogen gas, which, without these diagnostic measures, would have been impossible, short of an exploratory laparotomy. The relation of tumors of the abdominal cavity to the different organs and the peritoneal cavity can be mapped out and studied with great accuracy by dilating the stomach and different portions of the intestinal canal, at intervals, by inflation with this harmless and readily procurable gas.

SURGICAL DRAINAGE.[1]

BY W. R. WHITEHEAD, M.D. (PARIS),
OF DENVER, COLORADO;
EX-PRESIDENT OF THE COLORADO STATE MEDICAL SOCIETY, LATE PROFESSOR OF ANATOMY IN THE MEDICAL DEPARTMENTS OF THE STATE UNIVERSITY OF COLORADO AND OF THE UNIVERSITY OF DENVER, ETC.

MORE than a decade after Chassaignac had established the value of drain-tubes in the drainage of suppurating wounds, one of America's greatest surgeons[2] wrote in 1872, in his classical work on surgery, "that the great objection to drain-tubes was their liability to become clogged, and their tendency to cause irritation in the parts into which they are introduced." "For these reasons," said this eminent surgeon, "it is not likely they will ever come into general use."

Influenced by the teachings of Chassaignac, and also by the excellent results of my personal experience of the draining of suppurating wounds, I became an advocate of surgical drainage. Now that the principles of aseptic and antiseptic surgery are so well known, and are so thoroughly appreciated, I am more impressed than ever with the value of surgical drainage; and propose, in a brief communication on this important subject, to endeavor to claim for it the attention it deserves.

My first personal trial of drain-tubes was in 1860, when I used them, conjointly with tonics and cod-liver oil, in a case of scrofulous osteitis of the scapula: A counter-opening was made so as to pass in a perforated rubber tube, and permit the two ends of this tube to be tied together on the outside, after Chassaignac's method. The tube was syringed out daily, so as to keep it clear, and the wound thus cleansed with a solution of chlorinated soda, or Labarraque's disinfecting liquid. Occasionally, the tube was removed, cleaned and reinserted. The improvement in the local condition was marvellous. Subsequently, and during the early part of our civil war, as a surgeon in the Confederate army, I used surgical drainage in a number of suppurating wounds; and, notably, in one case of phlegmon of the neck, which succeeded to a gunshot wound that cut the cervical plexus; I incised the deep cervical fascia and, having made suitable counter-openings, inserted two rubber drain tubes, and tied their ends together as just described; and, as well as I can now remember, I treated the case in much the same way as the case first mentioned. After some weeks the wound entirely healed, the general health improved and there remained only the paralysis of the upper limb.

It is, however, of drainage as practised at the present time that I wish to speak; and as nothing so vividly and forcibly impresses my own mind as the practical application of a method, I shall, therefore, beg to call attention to the following recent case of fracture of the skull in which, I believe, the drainage, under an aseptic management of the wound, was the most interesting and important feature of the treatment.

CASE.—Horace C., aged five and a half years, on the evening of April 22, 1888, while crawling near a horse, received a kick, which fractured the frontal bone on the left side, the fracture extending to the coronal suture. The depressed piece of bone was nearest to this suture, and the depression corresponded to a line extending obliquely downward, forward and outward from the coronal suture to the temporal ridge and slightly posterior to the external angular process of the frontal bone. The depressed edge of the fractured bone was to the outer side of the line of fracture. The depression did not give rise to any cerebral disturbances affecting consciousness, or causing motor paralysis.[1]

[1] Read before the Colorado State Medical Society, June, 1888.

[2] Gross: System of Surgery, vol. i. p. 487.

[1] The line of fracture crossed the horizontal convolutions of the frontal lobe anterior to the ascending frontal and parietal convolutions or motor areas of the cortex. I thought best to trephine,

His head having been shaved he was chloroformed by Dr. J. E. Lowery, of Denver. An incision was made at right angles to the lacerated cut, and under thorough aseptic precautions the head was trephined, and the depressed piece of bone elevated with the point of a Sayre's periosteotome; the depressed piece of bone returning to its place with a sudden and quite audible snap. The wound was sutured with catgut, and a small rubber drain-tube placed in the centre of the wound, opposite the button of bone removed (see A in the wood-cut), and a still smaller tube was placed in the posterior angle of the wound. Both

FIG. 1.

Case of trephining for fracture of the skull; illustrating the value of drainage.

drain-tubes were secured in place, each with a stitch of catgut; a slightly moist iodoform gauze dressing was applied immediately over the wound; over this dressing was placed a small piece of folded sublimate gauze, and over this a circular piece of very thin rubber tissue cloth, and overlapping the rubber on all sides for several inches I placed a dressing of borated cotton, and applied a double-headed bandage, securing it under the chin, not having with me any elastic bands.

I think the drain-tubes were of major importance, as the dressing when removed plainly showed. If pus forms and burrows beneath the skull, a case like this becomes very serious, and the most rigorous antisepticism will be attended with doubtful results. The temperature averaged 99° to 101° F.

April 30, I removed the dressings, they having become loose, the fault of not having elastic bands with me when they were applied. Wound healed, except at drain holes; removing the tubes, there was a drop or two of pus. The wound had evidently remained aseptic until the fifth or sixth day, when the dressing became loose during the night; hence the pus. After syringing the drain holes with a mercuric bichloride solution, they were stuffed with iodoform gauze and dressed. This was repeated once or twice only, when the wound healed.

On removing the first dressing, the borated cotton, all around the outside of the rubber tissue cloth, was thickly saturated with dry blood. Thus it is seen how effectively the little drain-tubes performed their first office of draining off the blood and serum within the first few hours. No blood clot was left within the wound to become disorganized, should its aseptic condition fail to be maintained a sufficient length of time; but the drain-tubes were in place and ready, if needed, to perform their second office of draining off pus.

Healing, with a view to an organization of the moist blood clot, or after Schede's method, would have required the most scrupulous care in the adjustment of bandages about the head to keep them from becoming loose. This could have been accomplished by the use of elastic bands, in addition to the double-headed bandage, or by a suitably fitting cap.

The accompanying picture of the boy shows the scars, indicating the location of the injury; and shows, in part only, the extent of the fracture downward and outward. The dark spot in the line of the scar corresponds to the site of the trephining; and the scar to the right of this spot to the cut I made for room to apply the trephine.

There are two distinct indications which call for the use of drainage: One is to rid a fresh wound of discharges of serum and of blood within the first few hours; and the other is to prevent, subsequently, the occurrence and spread of suppuration, should it take place, or to drain a part of pus when it has already formed, just as the drain hole in the bottom of a flower-pot prevents a saturated condition of the soil about the roots of a plant.

It was for the purpose of draining pus, and for it alone, that drainage was originally employed in the days of preaseptic surgery.

I formerly used a well-known antiseptic wash, Labarraque's solution, already mentioned, for wash-

because under careful asepsis and skilful management of the case, the dangers of trephining are greatly less than the subsequent dangers of cerebral disturbance from a neglect to elevate the depressed bone. The button of bone was not returned, because it was small, and the small opening permitted the use of a drain-tube, a consideration infinitely more important than the complete occlusion of the line of fracture, because the blood which escaped in the dressing through the drain-tube would otherwise have given rise to compression. When the quantity of bone removed by the trephine is considerable, it is best, under aseptic precautions, to return most of it, as there will be, probably, openings enough for drain-tubes.

ing out wounds through drain-tubes. It seems so rational to do so that I have no doubt that centuries ago the thought must have occurred to surgeons to drain and wash out suppurating wounds; only the example was wanting, and the present kinds of cheap drains were not to be had.

The progress of surgery has heretofore been slow, like that of other arts which depend upon the gradual adoption and use of the numerous conveniences of life, which suggest the use of other conveniences.

The spirit of conservatism often retards the adoption of a really good thing, and will not permit us to live ahead of our time. Conservatism holds the world in check, until the world, generally, is ready to approve and accept of a new thing. Drainage had been waiting for the surgical era of Listerism, when it could accomplish its grandest triumphs.

The distinguished preaseptic surgeon, already mentioned, the pride of the surgical profession of America, wrote his disapproval of drainage; and at once the spirit of conservatism, so eminently respectable and so conspicuously shown, discarded the new method of Chassaignac; but it has reappeared at the front, reinforced by aseptic and antiseptic methods, and, I believe, to stay for a while until something better supersedes it.

Drain-tubes made of aluminium and of glass are used to meet special indications. Silver, especially, has been used, and, probably, was the first substance employed for this purpose. Thin sheet lead, made into tubes, is an available material, out of which drain-tubes have been made.[1] Catgut, or rather sheepgut, bunched in numerous strands, as also horse-hairs arranged in a similar manner, are much praised by some surgeons. John Chiene, of Edinburg, was the first to propose catgut as a drain. The well-known objection to this material is its property to absorb moisture and swell rapidly if previously put in an aqueous solution, making it difficult to thread a needle with it; and when used for drainage, catgut softens, swells and obstructs the flow of blood and serum, unless hardened beforehand in a chromic acid solution, so that filtration by capillarity along the threads is prevented. It is only during the first few hours that this kind of drain is available. It will not drain pus at all. If employed, it should be collected into a bundle of threads, of from five to twenty pieces, tied in the middle with a single catgut thread, and this should be threaded to a needle, and the drain stitched to the bottom of the wound, to keep it in place; besides, the catgut should be chromicised. The catgut drain is an absorbable drain, and, after a variable period, disappears. Those hardened in chromic acid take a great while to be absorbed. Horse-hair is an available substance for draining wounds; a bundle of horse-hairs is previously made aseptic, and tied in the middle with a carbolized silk thread; the knotted central part is placed in the wound by means of a fistula forceps. Horse-hair is not absorbable.

Neuber, of Kiel, was the first to use absorbable drain tubes, made from the tibiæ of oxen and decalcified. Macewen first used the long bones of chickens for the same purpose. Those which I use are prepared by myself, after Kocher's method; they are the long bones of chickens, decalcified, scraped and cleaned, and after remaining in the oil of juniper berries forty-eight hours, are then placed in strong alcohol, in which they are preserved ready for use. Red rubber drain-tubes, of different sizes, are also sometimes used. It is desirable to employ rubber tubes free from sulphur, when these are used. The red rubber is said not to contain any sulphur.

When a fresh wound is made thoroughly aseptic, and it can be confidently assumed that suppuration will be prevented, then I know of no better drain than a non-chromicised and properly prepared bone drain-tube, which will, probably, be absorbed within eight to ten days. After some recent joint resections, I have found bone drain-tubes, of my own preparation, to disappear within that period; these were cases in which I also used, at least, one rubber tube, at the most dependent part of the wounds; and these cases, with others, will form the subject of a future paper, but not, however, with any especial reference to drainage. In one of two cases of partial resection of the knee-joint, the joint resection was perfectly healed within a month; but two of the drainage tube holes continued to discharge pus, and required free incision and scraping, which was done under chloroform given by Dr. Lowery, when, after a few weeks, the wounds were entirely healed. The peculiar feature of this case with reference to the drainage, and which is appositely cited here, was that some weeks before, I curetted the suppurating drain holes, one of which I laid bare by incision. Around the orifices of the drain holes, there were granulating ulcerations, which, as Gerster observes, are an unmistakable indication for the use of the curette or sharp spoon.

In my opinion, the best drain-tube for general use is the perforated rubber tube of medium size. I believe it is better to insert one or more small tubes, side by side, than to use a very large tube, especially in the aseptic treatment of wounds; because one tube can be removed on the third or fourth day, if required; and if they should all remain for ten days or longer before removal, and the wound remains aseptic during this time, they can then be taken out, and there will not be found a drop of pus. Afterward, under proper care, the drain holes close with-

[1] Dr. Buckingham, of our Society, saw such used forty years ago.

out suppuration, unless there remains a focus of cheesy-like degeneration, which was the cause of the persistent suppuration from the drain holes in the case just mentioned, and which was, finally, completely cured by scraping and subsequent dressing with iodoform gauze.

A good way to treat a suppurating sinus after the drain-tube is removed and the sinus shows no tendency to heal completely is to benumb the parts around the orifice of the sinus with a ten per cent. solution of muriate of cocaine, then to make a slight incision over the sinus, curette it and dress it with iodoform gauze in the following manner: Take a small strip of bichloride gauze, or simply iodoform gauze, dust it thickly with iodoform, roll and twist it into a cord; seize the cord near its middle with a fistula forceps and carry it to the bottom of the wound or sinus, letting the ends of the cord project from the cut; dust thickly with iodoform and complete the dressing. This cord thickly impregnated with iodoform checks suppuration, and also acts, to some extent, like a drain; only infrequent dressings are needed, and the sinus heals rapidly, especially if it has been curetted. Small safety pins are used to prevent drain-tubes from slipping into the wound; but I have found it more convenient to stitch each one of them to the skin with a single loop of fine catgut; this prevents them from slipping in or out; and if there is no occasion to remove the drain-tubes before the eighth or tenth day, the catgut is absorbed, as is also the drain-tube, if it be a bone drain-tube, well prepared and not chromicised. If the tube be a rubber one, it is readily removed, and if found aseptic, or without pus following it, the hole should be dressed with iodoform, without syringing it out, as the syringing is apt to break up the newly formed adhesions.

In making a counter-opening for a drain-tube, there are two ways to do this. If it is a phlegmon to be drained, incise it, introduce the index finger of the left hand and seek for the most dependent part of the abscess cavity, push firmly with this finger and cut the skin over it; then push through this cut with the closed blunt points of the fistula forceps, seize the tube with the forceps and pull it into the cavity. If, instead of a phlegmon to be opened and then drained, there is pus escaping from a sinus, badly situated for drainage, it is, of course, necessary to make a counter-opening. In this case, probe the sinus with the closed fistula forceps, seek the place where the counter-opening is to be made, push with a drilling motion the points of the closed forceps toward the skin, and when the skin is reached incise and draw the drain-tube through. This, I believe, is Lister's plan, and avoids a large cut.

OPERATION FOR INGROWING TOE-NAIL, WITH HYPODERMATIC INJECTION OF COCAINE, FOLLOWED BY COLLAPSE AND GANGRENE.

BY F. JOHNSTON, M.D.,
OF CAIRO, GEORGIA.

MISS S., æt. twenty, single, in good health, consulted me, June 25th, complaining of pain in the great toe of her left foot. On examination, I discovered that the nail had grown to a depth of an eighth of an inch in the soft parts on the inner side; otherwise, the toe appeared normal. I advised a V-shaped operation, which I performed the next day as follows:

After thoroughly washing the left foot with warm water and soap, and disinfecting all instruments that were to be used, I inserted one-half grain of muriate of cocaine, with an ordinary hypodermatic syringe, in the soft parts on the inner side of the great toe. After waiting two minutes, I ascertained that feeling in the parts was completely absent. I made a V-shaped incision, nearly to the bone, and took out the plug. As soon as hemorrhage was arrested, which was very slight, the two raw surfaces were brought together and five silk sutures, previously soaked in a twenty per cent. solution of carbolic acid, were used. The wound was then dressed by sprinkling iodoform on it, and soft linen used as a bandage, the foot being kept in an elevated position.

From the time of the injection of cocaine till the completion of the operation was thirty-five minutes, and during that time she complained of no pain at all. Just as I was preparing to leave, I saw she was in a state of collapse, pulseless, lips cyanosed and heart beating feebly and irregularly. I administered nearly a drachm of sulphuric ether hypodermatically, and two drops of nitrite of amyl internally, which gave immediate relief.

I visited my patient on the following morning and found her resting well, complaining but little. I then took off the dressing to put on a new one, and to my complete astonishment the entire flesh on the inner side of the toe was black, cold and bloodless, and had a mummified look. The stitches were all taken out, and the wound treated as gangrenous, and in two weeks' time her toe was well and she was able to walk without further pain.

MEDICAL PROGRESS.

Treatment of Yellow Fever.—Regarding the treatment of this disease, DR. GEORGE M. STERNBERG, U. S. A., in the *Therapeutic Gazette*, August 15, 1888, reports the favorable results obtained in a series of twelve cases treated on the alkaline plan.

His recent researches in Havana have led him to think it very probable that in yellow fever, as in cholera, the specific microörganism causing the disease is located in the alimentary canal. While this is not proved, it is demonstrated that, as a rule, no microörganism capable of development in the culture-media usually employed by bacteriologists, is present in the blood or tissues of those recently dead from yellow fever. This view naturally suggests intestinal antisepsis as a mode of treatment.

It is well known that in yellow fever the urine and the vomited matters are highly acid. He has also found the intestinal contents to have usually a more or less decided acid reaction. A microbe, therefore, capable of multiplying in the stomach and intestine in this disease must be able to grow in an acid medium. But aside from this theoretical reason for prescribing alkalies, the highly acid condition of the secretions furnishes an indication for such a treatment, and the writer has long desired an opportunity to see a thorough trial of a decidedly alkaline treatment.

These considerations induced him during his recent visit to Havana to propose the following formula:

℞.—Sodii bicarb., grammes x (gr. 150);
Hydrarg. chlorid. corrosiv., centigrammes ij (gr. ⅓);
Aquæ puræ, litre j (1 quart).—M.

Sig.—50 grammes (about 1¾ oz.) every hour; to be given *ice cold*.

This treatment was adopted by Dr. Raphael Weiss, house physician at the Garcini Hospital, and he has just received from him a record of twelve cases treated by the director of the hospital, Dr. Francis Cabera, and himself.

It will be seen that they all recovered, and he adds that every case so far treated at the Garcini by that method has recovered. While these twelve cases were being treated, and a little before, eight cases were treated in the same institution by other methods, and five of the eight died.

Dr. Weiss writes him that in some of the more severe cases he increased the amount of bichloride to five centigrammes (¾ gr.) per litre. He says:

"Administering to the sick the bichloride of mercury, according to your directions, the gastric phenomena are very much modified; the gastric sediments appear later, and in no case have they been entirely dark. In some cases, truly dangerous on account of the state of the patient, in a general sense, gastric sediments (black vomit) did not appear, nor even nausea. The pains in the stomach were not so severe."

In some of the cases Dr. Weiss added benzoate of sodium to the formula for its laxative effect, and administered daily two enemas containing each a gramme (15 grs.) of the phenate of sodium.

Sherry wine and hypodermatic injections of ether were given during the second stage, when the pulse was feeble and the condition of the patient seemed to call for a stimulant.

With reference to the urinary secretion, Dr. Weiss writes:

"The urine has always been abundant. In some cases the density lowered, but was compensated by a large quantity of urine. Albumin did not appear in some of the cases, in others the amount was small, and in others it reached two grammes to the litre. The albumin has always disappeared on the second or third day, and then the fever ceased."

Whether the favorable results are to be ascribed to the alkali, or to the antiseptic action of the bichloride, can only be determined by testing the two remedies separately; but he is very much disposed to ascribe the unusual absence of gastric disturbance, and the abundant secretion of urine noted, to the alkaline element of the treatment, and it is extremely doubtful whether the bichloride reaches the intestine in sufficient quantity to exercise any decided antiseptic effect in that portion of the alimentary canal. The bicarbonate should be free from carbonate of sodium, as the mercuric chloride is decomposed by this salt and by alkalies generally. It is possible that the biniodide might be substituted to advantage in the formula above given.

In some experiments made by him several years since to determine the comparative antiseptic value of the salts and oxides of mercury, the following results were obtained:

	Active.	Failed.
Biniodide of mercury . .	1 to 20,000	1 to 40,000
Bichloride of mercury . .	1 to 15,000	1 to 20,000
Protoidide of mercury .	1 to 10,000	1 to 20,000
Yellow oxide of mercury .	1 to 1,000	1 to 2,000
Black oxide of mercury .	1 to 500	1 to 1,000
Calomel	.....	1 to 100
Blue mass	.....	1 to 100

The bichloride, the biniodide and the oxides of mercury exhibit a decided inhibitory—antiseptic—effect upon the development of the bacteria of putrefaction in the proportion given in the second column, and we may use these figures as a guide in our efforts to secure intestinal antisepsis by means of these agents; although it is, of course, very uncertain how much of the soluble mercuric salt introduced into the stomach reaches the intestine in an active form—probably very little. In the formula which he gave to the physicians of the Garcini Hospital the amount of bichloride prescribed is really only in the proportion of 1 to 50,000 parts of the solution; but he considered it advisable to commence the treatment with an amount that was entirely safe, and to increase the dose afterward if it was found to be prudent and desirable to do so. Dr. Weiss has, in fact, increased the dose in several severe cases to 5 centigrammes per litre—1 to 20,000. As all of these cases recovered, we may infer that when largely diluted, as in this formula, and given in small quantities at short intervals, it may be safely administered in these doses; but, as already intimated, he is rather disposed to attribute the favorable course of the disease to the full alkaline treatment than to any antiseptic effect of the bichloride in the intestine. In the stomach, however, he would expect a decided antiseptic effect from the medicine as administered; and perhaps this is, after all, what is most needed.

Cocaine as a Means of Diagnosis in Laryngeal Maladies.—One of the most difficult points in laryngeal diseases is the diagnosis of the cause of œdematous infiltration, which may be due to tuberculous, syphilitic or cancerous origin. Oftentimes the general history gives no clue. In such cases cocaine proves of value; if a solution is applied to the swollen membrane and causes the congestion to disappear, it may be assumed that the cause is a simple catarrh.

If, however, the redness persists after repeated applications, the trouble is probably excited by elements of a more serious import.—*Revue de Thérapeutique*, August 1, 1888.

Epistaxis in Nephritis.—M. GAUCHER considers persistent epistaxis an important symptom in early interstitial nephritis, especially in alcoholic subjects.—*Revue de Thérapeutique*, August 1, 1888.

Calomel in Tuberculous Processes.—DR. G. MARTELL, of Breslau (*Prag. med. Woch.*, No. 25), has for three years studied the action of calomel upon tuberculous processes, and has come to the conclusion that it must be recognized as the best adapted specific antiseptic in the treatment of tuberculous conditions. With proper precautions, its use should not give rise to toxic manifestations. By the introduction of calomel, the use of mercury against internal tuberculous processes, particularly in the lungs, is made possible. Dusted on external tuberculous processes, it acts locally; inhaled, in pulmonary tuberculosis, by contact with the diseased textures. Calomel, given in powder, is also useful in tuberculous ulceration of the intestine; in the form of a soap, it is also efficient in tuberculous glandular enlargement. The author concludes this prefatory publication with the statement that he has had such good results from the use of calomel in tuberculous processes that he wishes clinical confirmation of his recommendation before proceeding with more extended observations.—*Wiener medizin. Wochenschr.*, July 1, 1888.

Pomade for Antiseptic Dressing.—

Iodoform.	ʒss.
Essence of eucalyptus . . .	ʒiv.
Paraffine,	
Vaseline	āā ʒjss.

—*L'Union Médicale.*

Electricity in Incontinence of Urine.—In the *Gaceta de Enfermedades de los Organes Genito-Urinarios* for May, DR. ALEJANDRO SETTIER records two cases of complete incontinence of urine in which he used electrical treatment with success. The first patient was an officer, aged twenty-seven years, who had suffered from the infirmity for eight years; it dated from a time when he was kept under arrest for nine hours without being able to pass water. The urine dribbled away in small quantities every few minutes without his being conscious of the fact; he only knew that it had occurred by feeling wet. Belladonna, atropine and nux vomica had been given without effect. Electricity was applied in the manner recommended by Guyon, and in little more than three weeks the patient was able to hold his water for half an hour. After some months of persevering treatment he could retain his water for two hours during the day and only required to be awakened once in the night. Beyond this point, however, no further improvement could be obtained. The second patient was a boy, aged seven years, in whom the affection appeared to date almost from birth. The same treatment was employed, and in rather less than two months the little patient could control his bladder for thirty-five minutes, and, finally, was completely cured. Dr. Settier lays stress on the importance of continuing the treatment at short intervals for a considerable time after the bladder has recovered its tonicity.—*British Medical Journal*, July 28, 1888.

Injection of Iodoformized Ether in Abscesses.—M. VERNEUIL objects to the very large dose, one hundred grammes, of this solution into a suppurating cavity, and thinks the amount should be apportioned to each case. He has used it extensively with good results, and does not think it causes vomiting; but thinks that due to visceral affections, which have been shown to exist at the autopsies of all those cases in which vomiting was a prominent symptom.—*L'Abeille Médicale*, July 16, 1888.

Leiter's Tubes as a Sleep-producing Means.—LOEBL (*Wiener medizin. Presse*) has within a short time advised three patients who complained of attacks of vertigo and fainting, of feelings of traction in the occipital region, of sensations of constriction about the head, to apply Leiter's tubes to the head nightly for an hour before going to bed. Each, independently of the others, in the course of some time, reported that the symptoms for which the apparatus was applied had only partly disappeared, but that sleep had been favorably influenced. One, a female, in whom the dizziness had not entirely gone but occurred more rarely than before, could not find words enough to express her gratification that sleep, which, for a long time, had been disturbed, was now deeper and lasted longer. The author was of the view that the rest, the horizontal position, the concentration of the attention upon the working of the apparatus for a short time had a *quasi* hypnotic influence. The patient, a woman of education, opposed this view, saying that during the application of the apparatus she had her attendant read to her, so that her attention was directed to the reading and not to the apparatus.—*Memorabilien*, July 6, 1888; from *Centralblatt für die gesammte Therapie*, 1888.

Varicose Tumor of Lid.—CHISOLM reports a peculiar case occurring in a man of fifty-nine years. When he looks downward for a very short time, as when occupied in tying his shoe strings, seeking some small object on the floor, or in looking into his plate during a meal, the lower lid of the left eye rapidly swells until it attains the size of a small fowl's egg, encroaching upon the palpebral split, and temporarily shutting in the sight. When the head is lifted the swelling rapidly disappears. While the lid is enlarging the patient experiences the sensation of a warm current of liquid in the lid accompanied by a feeling of distention, but not of pain.

The surgical procedure by which a cure was effected was as follows: When the sac was most distended, a heavy seton composed of several strands of silk thread was passed through the whole length of the sac. The presence of this foreign body was designed to excite plastic inflammation in the lining surfaces of the venous sac. By the end of the fourth day there seemed to be much thickening of the skin, and the presumption was that plastic inflammation had been excited. With the seton left *in situ* the opposing walls of the sac were clamped together by passing three double sutures from the inner face of the lid through the tumor. The threads were secured over a roll of sponge which made direct pressure over the whole outer face of the lid. In passing these lid sutures each thread had two needles, one on each end of the thread. By passing one needle through the upper part of the lid and the other deep in the cul-de-sac, when the two ends of the thread as they appeared upon the face were firmly tied over the sponge, the clamp of thread on the conjunctiva within and the sponge withont brought the whole opposing surfaces of the flattened tumor in contact and insured the complete obliteration of the sac. The presence of these three sutures with the sponge caused so much pain and inflam-

mation, with excessive chemosis, that they were removed with the seton on the third day. The swelling rapidly subsided upon the withdrawal of the threads. A week afterward the patient was dismissed with the inflammatory swelling nearly effaced.

The patient was heard from six weeks after the operation. The inflammatory thickening of the lid had altogether disappeared, and with it all trace of the swelling. The obliteration of the sac remains permanent.—*Archives of Ophthalmology*, June, 1888.

Endometritis.—DUMONTPALLIER treats this affection by tampons saturated in zinc chloride solution and applied to the cavity of the uterus. He maintains the position of the uterus by pressure on the hypogastrium, and inserts the tampon, on a piece of whalebone, with a spiral motion. The pain does not commence directly, and only continues for a few moments. He reports most happy results.—*Gazette Médicale de Paris*, Aug. 4, 1888.

For the Gastro-intestinal Catarrh of Children the following formula is recommended (Lem. méd.):

Bismuth. salicylat. . .	4 to 5 parts.
Glycerin	10 to 20 parts.
Aquæ	100 parts.—M.

S. A tea or tablespoonful, according to age, every four hours.—*Deutsch. medicin. Wochenschr.*, July 26, 1888.

Pelvic Abscess Treated by Trephining.—Adding to the literature of these cases, the first of which was performed by Fischer, Hanover, in 1880, DR. RINNE presents two cases of his own (*Archiv für klin. Chirurg.*, Bd. xxxiv. Heft. 4). In both of them he obtained favorable results. That occurring in a boy of nineteen years was first supposed to be coxalgia; but the excessive pain, high fever and, later on, the appearance of a fistula convinced him that the case was one of pelvic abscess. A transverse incision was made first above the greater trochanter, the periosteum opened by a crucial incision and the bone trephined. The finger introduced into the opening found the large cavity completely filled with pus, and masses of granulations which were removed by curetting. The inner surface of the ilium was covered with a soft granulating tissue, but no necrosis was discovered. Free drainage was established and over half a litre of pus was evacuated. The patient made a complete recovery in nine weeks.

The other case was treated in the same way, save that antiseptic precautions were more rigidly enforced and the bone opening was about the size of a *franc*. Notwithstanding that both cases had been of long duration, the bony tissue was not involved.

Cocaine as an Antiseptic.—Based on the antiseptic properties of cocaine taken internally, LUTON (*Rev. gén. de clin. et de Thér.*, No. 4) has successfully used this remedy in variola. He thus sums up: 1. Cocaine used at the beginning of the disease notably lowers the temperature (from 104.9° to 98.6° in twenty-four hours). 2. At the same time, the eruption is checked and does not advance. 3. Given in the eruptive stage, cocaine is abortifacient; the pustules desiccate. 4. If the administration is stopped at this stage, the disease resumes its usual course, the temperature rises again and the eruption pursues its normal sequence. 5. The treatment consists in the subcutaneous injection of four minims of a twenty per cent. solution, three or four times daily, and the internal administration of a solution of three and one-half grains of cocaine in four ounces of gum mixture, in tablespoonful doses.—*Deutsch. medicinische Wochenschrift*, July 12, 1888; from *Wiener medizin. Presse*, 1888, No. 12.

Salicylate of Sodium for Toothache.—HOFMANN (*Prag. medizin. Wochenschr.*, No. 11, 1888) recommends salicylate of sodium as an internal remedy for toothache. The relief, however, is only temporary. The pain returns unless the cause is removed. Twelve grains are given at intervals of half an hour; as a rule, two to three doses suffice to allay the pain for one or more days.

The Administration of Turpentine.— The more extended use of turpentine as a medicament is handicapped by the unpleasantness of the remedy. There is no difficulty in the inhalation of the oil. A compress saturated with half an ounce held to the nose or placed on the pillow at night suffices for several hours. The internal administration, however, is more difficult. To overcome this objectionable feature, FRÖLICH (*Deutsch. medizin. Wochenschr.*, July 19) has had made lozenges containing each 1½ and 3 drops of rectified oil of turpentine in combination with sugar. By this means the remedy is brought into direct contact with the mucous membrane, so increasing its efficacy.

The Local Treatment of Diseases of the Bladder.—ULTZMANN considers topical treatment admissible only in chronic disorders of the bladder and the posterior portion of the urethra, and, as is not uncommon in gonorrhœa, these parts often require local treatment. For this purpose a thin catheter is passed into the bladder and then withdrawn until the flow of fluid ceases—the beak of the instrument thus lying at the neck of the bladder. If about ten ounces of an antiseptic fluid are now slowly injected, it will gradually flow over the diseased mucous membrane into the bladder, to be spontaneously evacuated by the patient after the removal of the catheter. In the treatment of the bladder itself, Ultzmann rejects the double current, because independently of the cases with shrinking of the bladder, the mucous membrane of the contracted organ is only partially washed. He prefers washing out the bladder by means of a soft catheter and a hand syringe, qualifying that the fluid must be completely evacuated. Ultzmann uses weak solutions, *e. g.*, one-sixteenth per cent. carbolic acid, one-half per cent. resorcin, one-tenth per cent. permanganate of potassium; in case of ammoniacal fermentation, he uses three drops of amyl hydride to a pint of water; in case of phosphaturia a one-tenth per cent. salicylic solution.—*Deutsch. medicin. Wochenschr.*, August 2.

Treatment of Diphtheria.—COUSET, of Brussels, strongly urges the use of a mixture of tannin, mucilage and alcohol for local application. He applies it by means of a syringe and claims that the mucilage acts as a protection and keeps the ingredients longer in contact with the diseased surface. He cites a long series of cases which show the efficiency of his plan.—*Journal de Méd. et Chir. Pratiques*, August 4, 1888.

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THE PRESENT STATUS OF THE IMPROVED CÆSAREAN OPERATION.

IN view of the fact that important Cæsarean successes are to be reported before the American Gynecological Society at its meeting next month in Washington, and the merits of the new method of operating fully discussed, we have thought it well to prepare some pertinent statements bearing upon the subject to be considered. As this society has in its active membership fourteen Cæsareanists, who during the past forty-one years have collectively performed twenty *gastro-hysterotomies*, twelve of them by the new or Sänger method; and its members have also performed nine of the fourteen *laparo-elytrotomies* upon record, we may expect the whole Cæsarean subject to be ably considered. Five operations under the improved method, performed by three members, with four recoveries, one case having been entirely hopeless, are yet to be reported.

Perhaps there are not five men in all Europe and America who know to what extent the improved operation has been performed, and how successful its results have been, in the hands of those engaged in it. We have noticed very erroneous statements made in regard to it before medical bodies, not the least of which is, that it owes its marvellous results to its having fallen into the hands of a few very skilful men. Now so far is this from being the case, that the 131 operations in our record have been the collective work of 73 men, in Germany, America, Austria, Italy, Russia, Switzerland, Holland, France, England, India and Denmark. It is true that Prof. Leopold, of Dresden, has had fourteen cases with only two deaths, and that Prof. Schauta, of Prague, formerly of Innsbruck, has operated six times without a death; but take the work of last year, 1887, in which Leopold had three operations without a death, and Zweifel five operations with one death, and we find a record of 44 cases under 34 operators, with only 9 deaths. There were 29 operations divided among as many operators, with a saving of $72\frac{12}{29}$ per cent. of the women, which is about equal to the general average of 95, saved out of the whole 131 cases.

The Dresden Maternity has had 20 operations, with but 2 deaths, under three operators, counting respectively 14, 5 and 1 each. The Leipzig Cæsareanists have a credit of 16 cases under six operators, or respectively 5, 5, 2, 2, 1, 1 each, with 2 deaths. These have been, until the present year, the special centres of the new operation; but Vienna promises to take the leading position, as she did through the obstetrical staff of her Krankenhaus, under the Porro operation, having already had seven cases this year, as far as heard from, under three operators, without a death. Beginners have much to encourage them in the records of the past, as *first* operations have been successfully performed in 47 out of 73 cases; and had not many of these cases been very unfavorable, or actually hopeless, the proportion might have been higher; and this is specially true of our own country. Skill in abdominal surgery and a thorough knowledge of, and adherence to the technique, with a fair case in hand, are the chief requisites for success. Drs. Zweifel, Paul Bar and Weber all lost their second cases after saving the first; Dr. Chiara lost his third, and Leopold his fourth.

The deaths after the Sänger-Cæsarean operation are to be considered under four heads, viz., 1. Those resulting from a preëxisting and hopeless disease, such as the last stages of cancer, Bright's kidney or cardiac lesions. 2. Those resulting indirectly from the operation, because of the physical exhaustion of the patient, the effects of long labor; or produced by futile attempts to deliver with the forceps, by version, or by craniotomy. 3. Those resulting from the parturient state, rather than the operation, as from diphtheritic endometritis or other *post-partum* disease, endemic in a hospital. And 4. Those the direct result of the operation in favorable subjects.

Peritonitis after a Cæsarean section is not necessarily a consequence of it; but may be entirely in-

dependent of it, as was the case with the third patient of Prof. Chiara, of Florence, operated upon on January 5, 1888. On the sixth day she bid fair to recover, as his first and second cases had done: on the seventh, violent peritonitis occurred, and on the eighth day she died. An autopsy showed that the woman had been the subject of ulcerative enteritis, presenting old cicatrices, and a recent ulcer which had perforated the wall of the bowel and allowed fecal matter to escape into the peritoneal cavity. The parts operated upon were not involved and the wounds had closed.

It should be borne in mind that the eliminative power of diseased kidneys may be very seriously diminished by an abdominal section, even so as to arrest their function and destroy a patient, who without such an exciting cause might have lived much longer, notwithstanding their diminished activity: hence where albuminuria exists the prognosis should be unfavorable: Dr. Beumer's case, the second on record, died from kidney disease in forty hours.

A very rapid pulse makes the prospect of an operation unfavorable, but has less weight now than under the old operation in determining a prognosis. We have known two women to recover whose pulses before the knife was used counted 143 and 142 beats, respectively. Long labor and exhaustion therefrom, where no futile attempts to deliver by the forceps, version or cranitomy have been made, do not necessarily render an operation hopeless, for cases have recovered in this country after labors of seven, ten and fourteen days, respectively. Experiments at forcible delivery, such as have been named, are much more likely to give an operation a fatal issue than a simple delay through ignorance.

In a hundred Cæsarean cases there will always be some that simply increase the general mortality, being in themselves positively hopeless for the mother. Where there exists, for example, a cancer of the vagina, rectum and nates, with a pulse of 168, as in the Polk case of New York, or where the urine is highly albuminous and shows tube-casts, as in the Norment case of Baltimore, the operation is in the interest of the fœtus and to diminish the agony of the mother. Such operations count one each, against the surgery, as statistics are too often estimated. Hopeless cases should occupy a middle position between those that have some hope of a favorable termination and those that are operated upon *post-mortem* to save the fœtus, and should be separately classified.

The prevalence of rickets and malacosteon must eventually determine the number of Cæsarean operations that are to be performed in a given city, district or centre. Under the old method, the chief records were made in Vienna, Paris, Milan and Naples. Paris introduced the *brise-tête*, and still, through her leading obstetricians, favors craniotomy and embryulcia, although the death-rate under infantile destruction is much higher than under the Sänger operations of Germany and Austria: she has only as yet had four of the new form of operation. Milan has not yet had a case, as her Maternity is under the direction of the originator of the Porro operation. The "Hospital for Incurables" in Naples still carries on the operation of Sigault, in which Prof. Ottavio Morisani has strong faith: he has once performed that of Sänger; but that was in July, 1886, and unfortunately the woman died of septic peritonitis in thirty hours. The uterine wound had closed, and there had been no escape of fluid into the peritoneal cavity. Although in a private letter he has expressed himself as pleased with the evident capabilities of the operation, he has not again made trial of it.

The obstetricians of the Vienna Krankenhaus, although much more tardy in their initial trial of the Sänger method, as compared with their adoption of that of Porro, have at the end of five years entered with zeal and success into the work. Dr. Ehrendorfer, of Vienna, operated upon a very unfavorable case in September, 1884, which terminated fatally; and it remained for Prof. August Breisky, in October, 1887, to make the second trial. Great credit is due him for his willingness, after having had three deaths in Prague, to make a fourth trial at Vienna of the new method, when he had had such a series of earlier successes with that of Porro. Happily he was repaid by entire success, and has the honor of having initiated in the Maternity a method of relief which appears destined to accomplish great results under her obsetrical staff, eight cases having already terminated with success in about as many months.

Cologne is another of the centres of Cæsarean necessity, where the old operation has had a mortality under one operator of sixteen cases out of twenty: we have not heard of any Sänger case there as yet. Besides the popularity shown by the 44 operations of Dresden, Leipzig and Vienna, the new Cæsarean method is in much favor in St. Petersburg, Freiburg, Hamburg, Berlin, Warsaw, Florence, Utrecht, Basle and New York. Great Britain will

be one of the last countries to give up her old prejudices. She tried laparo-elytrotomy twice; the Porro operation a few times; and she has had two Sänger cases, more or less modified, since October, 1886: the Porro method alone gave any encouragement by success.

The work of the present year shows a decided increase over that of the past, in the fact that twenty-six cases have been reported for the first six months, being nineteen European with three deaths, and seven American with three deaths. Two of the three deaths in our country were in subjects hopelessly diseased before the operation, and the third was at the time profoundly narcotised with morphia.

There have been sixteen Cæsarean operations in the United States since January 1, 1887, one-half of them in the present year, and all but one claiming to belong more or less closely to the German type. Of the *favorable* cases four recovered and one died: of the *unfavorable* cases, four recovered and five died; and of the *hopeless* cases both died: twelve of the sixteen children were saved.

As nearly as can now be ascertained, seventy-two of the first hundred Sänger cases in chronological order were saved, against forty-one of the first hundred under the Porro operation: the mortalities were therefore twenty-eight and fifty-nine per cent., respectively. The forty German and Austrian operators have performed eighty-six Sänger operations and saved seventy-one women, or a fraction over seventy-eight per cent. This leaves forty-five operations for the rest of the world, divided among thirty-three operators, saving twenty-four women, or $53\frac{1}{3}$ per cent., which is apparently not very creditable to the outside operators. As New York and Philadelphia have saved six women out of a total of eleven, under seven operators, the work in the two cities is only a fraction above this average, or $54\frac{6}{11}$ per cent. The difficulty in our country, which has had twenty Sänger operations with eleven deaths, or 55 per cent., lies mainly in the fact that the patient is too often subjected to the knife when in a condition unfavorable for recovery, as we have already shown by the record of the past eighteen months, which is our best, in which one-half of the cases were saved.

What chiefly concerns the American Gynecological Society is to determine how the improved Cæsarean operation of Germany may be made as successful here, as it has been in the country where it originated. Dr. Lusk has shown how it may be done with three cases without a death, and Dr. Kelly has followed his example with two. It is evident that it can be done, and the point to be attained is the presentation of the woman to the operator in a favorable state, which means where there has been no futile intermeddling. There was a time when every hospital Cæsarean case in the United States died, and the tenth was the first that did not: there have now been twenty cases and the recoveries have increased to seven, all being the result of the Sänger method. Much of the success in Europe has been attributed to her maternities, which were at one time regarded as pest-houses. The question between the relative value of the hospital and private house should be considered.

THE yellow fever outbreak in Florida does not appear to be gaining any headway, and the indications from the present outlook are that it will not last long, unless the cases now under treatment at Jacksonville should develop new centres of dissemination, and the Jacksonville Board, of which Dr. Mitchell is President, is doing all it can to prevent this. The fumigation system now practised is the only new thing yet developed by the epidemic, that is to say, movable fumigating cars adapted for the use of sulphurous acid gas.

DURING the winter session of 1887–1888 over three hundred and thirty-five physicians attended the courses of instruction of the Post-Graduate Medical School of New York, an increase of more than sixty per cent. over last year. In the hospital department about four hundred operations were performed, all of major importance. This remarkable increase in the matriculation list has necessitated both larger clinical space and hospital accommodations, so that a new clinical amphitheatre has been erected and will be used for the first time at the opening of the winter session, September 17, 1888. A new and commodious laboratory has been erected and furnished with the latest apparatus for the study of normal and pathological tissues. The nose and throat clinical room has also been enlarged.

Professors Abraham Jacobi, Robert F. Weir, Joseph E. Winters, L. Bolton Bangs and Peter A. Callan have been appointed to the faculty.

PROF. RYDYGIER has been elected dean of the medical faculty at Cracow. The erection of the surgical clinic is in active progress, the formal laying of the corner-stone having taken place in June.

AN Italian Congress for Hydrology and Climatology will be held on the 10th of October at Bologna. Prof. Muni will preside. An exposition will be held in conjunction with the Congress.

PROF. LASCHKEWITSCH, of Charkow, recently deceased, has bequeathed 50,000 francs (about $12,500) for the erection of a laboratory for experimental physiology.

A NEW journal, entitled *La Médecine hypodermique, antisepsie médicale au moyen des injections sous-cutanes*, under the editorship of Dr. J. Roussel, has appeared at Paris.

THE prize of the Caucasian Medical Society for this year has been awarded to Dr. Kuerharski, of St. Petersburg, for his thesis "Upon the Microörganisms of Trachoma." The paper has been published in the proceedings of the Society.

ON the occasion of the Meeting of the British Medical Association at Glasgow, the University of Glasgow conferred the honorary degree of LL.D. upon a few of the distinguished members of the profession who attended the meeting. The foreign list comprised Dr. Fordyce Barker, of New York, Prof. Ball, of Paris, and Prof. Benedikt, of Vienna.

IT is proposed by Sir William Bowman's friends to make public acknowledgment of his distinguished services to ophthalmology and to physiological science, in the form of a portrait of himself, together with a reprint of some of his works. A committee has been formed to carry out this project, of which Dr. George Johnson is treasurer.

THE 1889 Meeting of the British Medical Association will be held at Leeds, and Mr. Wheelhouse has been selected as President-elect.

REVIEWS.

A SYSTEM OF OBSTETRICS, BY AMERICAN AUTHORS. Edited by BARTON COOKE HIRST, M.D., Associate Professor of Obstetrics in the University of Pennsylvania. Volume I. 8vo. pp. 808. Philadelphia: Lea Brothers & Co., 1888.

THIS, the companion volume to the "System of Gynecology, by American Authors," places before the profession the first half of the four volumes intended to form the series. Similar in plan and execution to its predecessor, it equals it in the excellence of the subject matter and the perfection of the publishers' art.

Of the eight articles which it contains five are distinctly practical: "The History of Obstetrics," by Dr. Engelmann, and "The Physiology of Ovulation," by Dr. Martin, are highly interesting from a scientific standpoint; while "The Mechanism of Labor," in six positions, by Dr. Penrose, is the literary embodiment of its author's professorial teachings for the last quarter of a century.

As a treatise for the use of the practitioner the volume will be found to represent admirably the obstetric science of the day, as exemplified in American practice.

THE ETHICS OF MARRIAGE. By H. S. POMEROY, M.D., of Boston. WITH A PREFATORY NOTE, by THOMAS ADDIS EMMETT, M.D., LL.D., of New York; and AN INTRODUCTION, by REV. J. T. DURYEA, D.D., of Boston. 8vo. pp. 198. New York: Funk & Wagnalls, 1888.

THE author states that his first intention was to write a tract, and in this he has been successful. He regards the production of healthy offspring as the chief end of marriage; and so impressed is he with the frequency of procured abortion, that he has written this tract to rouse the sentiments of his fellowmen, and to urge the enforcement of existing laws; he appends tables showing the legal statutes of the States and Territories upon this question. To encourage the timid, he urges that reproduction is a healthful, invigorating process, adapted to improve the health of those who may be frail, but without organic disease.

We have been fortunate in failing to encounter the aversion to childbearing among the well-to-do which occasions the writer such disquietude. The cultivation of outdoor sports has produced a generation of Americans quite capable of all the functions of the healthy animal, and not afraid of, or averse to reproduction. They and their children represent the mental and physical improvement of a generation, and promise better things than frequent abortions.

We know of but two statements which, in our experience, have influenced persons in this matter. First, there is no preventive of conception but complete abstinence; second, abortion is often fatal to the mother, always dangerous. Any argument or array of statistics which enforces these points is of value. But from the ethical argument we expect nothing; those who are base enough to contemplate abortion will heed no argument but that of self-interest.

We believe that the personal influence of the physician, in refusing to listen to requests to procure abortion, and his emphatic statement of facts, are his sphere of action in such matters, in which he is powerful. But from sermons by physicians and prescriptions by clergymen we hope for little good.

SOCIETY PROCEEDINGS.

CONGRESS ON TUBERCULOSIS OF MAN AND ANIMALS.

Held in Paris, July 25 to 31, 1888.

JULY 27TH—EVENING SESSION.

(*Specially reported for* THE MEDICAL NEWS.)

(Continued from page 195.)

ON THE PERSISTENCE OF THE GERM OF TUBERCULOSIS IN RIVER WATER.

MM. CHANTEMESSE and WIDAL, of Paris, stated that they made researches to ascertain how long the spores

of tuberculosis would live in Seine water. Some samples of water had been, some time previously, sterilized, and the cultures containing many tubercular spores were placed in them; others received the cultures directly without previous sterilization. Half the tubes of each section were kept at a temperature of 46.4° to 53.6° F.; the other half were kept at the temperature of the room, 59° to 68° F. Every eight days, water was taken from the tubes kept at a cold temperature and those at a moderate one, and were then placed in Pasteur's vials containing glycerized broth, according to Nocard and Roux's method. Pasteur's vials were then placed in the heating stove. At the end of twenty days and one month, one cubic centimeter of each of the tubes which, without previous sterilization, had received germs of tuberculosis was inoculated into the peritoneum of guinea-pigs. The results were as follows: The germ of tuberculosis was preserved for fifty days in sterilized Seine or river water kept between 46.4° and 53.6° F. It was preserved for seventy days in river water, previously sterilized, and kept at a temperature of from 59° to 68° F.

Besides the question of the vitality of the tubercular germs, is the no less important problem of their virulence. The guinea-pigs inoculated with one cubic centimeter of water, which contained for fifteen days germs of tuberculosis, were sacrificed after two and a half months. Not one presented any trace of tuberculosis. This result was due to the feeble dose of inoculated germs, or to the attenuation of these germs in a more or less cold water, or to both of these causes.

M. ARLOING, of Lyons, in connection with the facts presented by MM. Chantemesse and Widal, desired to call attention to experiments made by MM. Galtier and Cadéac, in regard to the resistance of the bacilli in contact with river water. These experiments had been made under two conditions. Tubercular fragments were placed in running water; fifteen days later the fragments were very virulent. In running water the virulence was maintained for one and a half months; in stagnant water, an inoculation made on the 120th day gave positive results, while one made on the 123d day was negative.

GENERAL OR LOCAL MEANS CAPABLE OF ARRESTING THE EXTENSION OF EXPERIMENTAL TUBERCULOSIS.

M. ARLOING has tried to prevent the extension of tuberculosis, as some have tried to prevent the spread of syphilis, by extirpation of the chancre and neighboring lymphatic gland. In the guinea-pig, the best place for inoculation is the mammary gland, which also contains the nearest lympathic gland. He inoculated several of these animals, and on some of them, on the seventh and fifteenth day, he performed the total extirpation of the initial lesion and neighboring gland; and then killed all the guinea-pigs on the same day. He found them all tuberculized to the same degree, whether the gland and point of inoculation had or had not been excised. In another set of experiments he excised on the ninth day, before there were any inflammatory signs of the success of the inoculation, but, notwithstanding that, all the animals became sterilized.

It had been hoped to attenuate the severity of tuberculosis by inoculation of a virus which was attenuated by passing through an animal, but inoculation of this attenuated tuberculosis does not prevent the evolution of true tuberculosis.

Scrofulosis, which has been considered as an attenuated tuberculosis, can be inoculated; but a true tubercular virus will also take on the same subject and produce all the lesions of tuberculosis. Hence we cannot rely on an attenuated tuberculous virus, which would be rendered so by passing through the organism of an ox.

Like M. de Brun, in regard to malaria, he endeavored to ascertain whether certain antagonistic microörganisms would not prevent the growth or development of the tubercle bacilli. As the microbe of typhoid fever had been cited as an opponent of Koch's bacillus, he saturated guinea-pigs with the typhoid virus: tuberculosis developed perfectly on them nevertheless. He still hopes that a vaccine of tuberculosis will be found; and he mentioned the fact that MM. Raymond and Arthaud have rendered animals less apt to contract tuberculosis by a tannic impregnation.

BACTERIAL ASSOCIATIONS OF TUBERCLE BACILLUS.

M. BABÈS, of Bucharest, said that out of 73 post-mortems of children, he found 65 cases of tuberculosis of the glands. Koch's bacillus was found 45 times. Out of 52 post-mortems of extensive tuberculosis, Koch's bacillus was only found alone 10 times. In 42 out of the 52, tuberculosis was very apparent; but in all those cases Koch's bacillus was associated with other microorganisms. The bacteria that complicate tuberculosis in children are the streptococcus aureus and albus and the pus streptococcus.

In tuberculous peneumonia, pleurisy, peritonitis, or meningitis, Koch's bacillus is always found associated with other microbes; and these additional microbes are those that are found and produce the disease of the organs invoved—Friedländer's microbe for pneumonia, etc.

In local tuberculosis of bones and articulations we have a complication by the addition of the pus streptococcus, which is found in all organisms. Tubercular lesions are the doorway by which these different microbes invade the organism, and mix with the tubercle bacillus. In children especially, tuberculosis rarely kills without additional complications; one must also admit that latent encapsulated tuberculosis, very common in children under the form of tuberculosis of the lymphatic glands, can become very active and severe under the influence of other microbes.

GANGLIONIC CASEO-TUBERCULOSIS.

M. DURET, of Lille, described three forms of tuberculosis of the lymphatic glands, which are each to be treated in a different manner: 1st, a fibro-caseous form; 2d, a caseous-tuberculous form; 3d, an ulcerative or fistulous form. For the fibro-caseous form, he recommends simple incision with the knife and extirpation of the glands. In simple caseo-tuberculosis, we must distinguish those forms in which the tuberculosed lymphatic glands are separated in chains, and those that form one single, compact and agglomerated mass.

In the first case, each gland should be treated by ignipuncture; in the second case, the entire mass must be incised with the red-hot iron, in the form of a cross. In the fistulous form, these must be opened with the thermocautery and the suppurating cavities thoroughly cauterized.

ON PSEUDO-TUBERCULOSIS OF MAN AND ANIMALS.

MM. CORNIL and TOUPET, of Paris, said that at the beginning of this year Dr. Routzer gave them for examination a tumor, the size of a pea, which had been extirpated from a finger. On microscopical examination, it was found to be composed of fibrous tissue, in the middle of which were a number of round embryonal nodules, looking like tubercular follicles; they also found amidst these characteristic giant-cells. Bacilli, however, could not be found. These nodules were quite limited at their periphery, and no extension of embryonal cells from them could be seen; finally, in the centre of the follicles, they could not find any degenerated cells, as are found in a typical tubercle. This little tumor had for its origin a small wound produced by an oyster-shell; the wound healed rapidly, but an indurated nodule remained beneath the skin. Having learned the origin of the trouble, they examined their specimens again, and found little fragments of oyster-shell; they diagnosed pseudo-tuberculosis produced by the penetration of small foreign bodies under the skin.

M. Cornil mentioned an analogous case, observed in an antelope, which had apparently tuberculous nodules, but no bacilli could be found, except an ovoidal bacteria, which was probably the cause of the affection; but here was an anatomical lesion, identical with the one produced in the tissues by Koch's bacillus; this is a new example of pseudo-tuberculosis. Can the difference between true and pseudo-tuberculosis always be made? In the oyster-shell pseudo-tuberculosis they could find no degenerated cells in the centre; while in the antelope, on the contrary, the degenerated part was very large and contained filaments of fibrin which are not found in true tuberculosis.

RAW MEAT AND BLOOD AS FOOD FOR TUBERCULAR PATIENTS.

M. HUREAU DE VILLENEUVE, of Paris, considered not only the use of raw meat a dangerous proceeding, on account of the microörganisms which might be taken with it, but also he did not think it of great use as a food. Raw meat is not always palatable, and with phthisical patients we must be particularly careful not to produce a disgust for food. To his phthisical patients he gives excitants, like strychnia and arsenious acid, which increase the appetite remarkably; as to food, he gives the patient what he likes.

ON SURGICAL INTERVENTION IN TUBERCULOUS OSTEO-ARTHRITIS OF THE FOOT OF A CHILD.

M. REDARD, of Paris, thinks that even severe forms of tuberculosis of the ankle-joint in children can be cured by free opening of the articulation, followed by thorough scraping and cauterization with the thermo-cautery; the tuberculosed articulation must be thoroughly disinfected before and after the operation; cauterization with the red-hot iron of every tuberculous fistula or abscess; careful drainage, antiseptic bath, immobilization in plaster-of-Paris; the final result, if all precautions are taken, is a very satisfactory one.

M. VERNEUIL said that he had always recommended the preservation of tuberculosed articulations in children, and, above all, thorough disinfection before the knife is used; antiseptic precautions and immobility will do the rest; let us not excise a joint too rapidly, for we are able, in many cases, to preserve an articulation to our patients by acting otherwise.

JULY 28TH—MORNING SESSION.

Second Question: Human Races, Animal Species and Organic Mediums studied in regard to their aptitude to Tuberculosis in Asia Minor.

TUBERCULAR CIRRHOSIS.

M. HANOT, of Paris, is certain of a definite cirrhosis, having all the anatomical and clinical characters of ordinary cirrhosis, and yet due to tuberculosis. In tubercular cirrhosis one must not be astonished to find that the lesions of the intra-hepatic connective tissue are very slightly marked, for as soon as the liver is involved the tuberculosis of the lung takes a very rapid course. Even in alcoholic atrophic cirrhosis, we find a very limited development of the sclerotic tissue; and in certain acute forms of alcoholic cirrhosis, the new formation of connective tissue is almost entirely absent. As he should occupy himself exclusively with the lesions of the connective tissue of the liver of tubercular patients, he should not study the cellular lesions which are always present.

We are certain to-day of the mode by which tubercle bacilli reach the portal system. Intestinal lesions are not at all necessary to infect the liver, as demonstrated by Weigert, but the portal vein and lymphatics are quite able to absorb the bacilli without any intestinal lesions. How easy their absorption must be, then, when such local lesions exist in the intestine. When tubercles are found in great quantity in the substance of the liver, their etiology is easily explained; but when only very few are found, and do not occupy the neighborhood of the portal system, the action of bacilli is not so easily explained. We must then admit, like Chaon, that intestinal lesions are produced in tuberculosis, without the presence of the bacillus, as it takes place for syphilis where gummatous tumors are not so often present. He thinks, also, that the action of the soluble products derived from the microbes, can explain why this bacillus acts at a distance and not only locally. Tubercular cirrhosis has also its clinical characters; it has a typical ascites, an increase of the superficial abdominal veins, a diminution in the size of the liver. He has often thought, with M. Lauth, that the ascitic form of tubercular peritonitis could be explained by the presence of a tubercular cirrhosis, and that tubercular peritonitis is often nothing else but a tubercular cirrhosis, as is discovered at the autopsy.

ON THE FAMILIES OF TUBERCULOUS PATIENTS.

M. RICOCHON, of Champdeniers, has been able to collect the personal and hereditary antecedents of 53 patients. He has found in the parentage or collateral relations, tuberculosis 181 times; 83 different neuroses—epilepsy, eclampsia, chorea, infantile convulsions, etc. In 38 patients there was congenital dislocation of the hip-joint, 33 bony deviations, next came pharyngeal and laryngeal diphtheria, cancers, herniæ, nævi, etc. The osseous deviations, congenital dislocations of the hip, herniæ, varicosed veins, seem to indicate a weakness in the fibrous and osseous tissues. This is due to a hyper-mineralization of the tissues, a lack of the mineral substance, which, rendering the tissues less resistant, become a favorable field for the development of tuberculosis.

HEREDITY AND CONTAGION OF TUBERCULOSIS.

M. FERRAND, of Paris, gave the observations of three families, showing an undeniable hereditary influence, in which contagion can only be secondary. One of them is composed of the father, mother and seven children; father died of phthisis at the age of seventy-five; the mother, eighty years, is perfectly well. All the children, however, have died of tubercular manifestations, white swelling, meningitis; the daughters, having married, lost also several of their children from similar diseases. In a second family, the father was considered tuberculous at twenty, a brother of his died phthisical, the mother died of cancer of the liver; they had two daughters, one died of tuberculosis at twenty-one, the other, although having had hemoptysis, lived, had four children, one of whom died very young. In a third family, the mother alone was tubercular and lost one child phthisical.

We find here that cohabitation has not produced tuberculosis in the living and healthy husband. Contagion of tuberculosis is not at all proven.

HEREDITY OF TUBERCULOSIS THROUGH THE PLACENTA.

M. MALVOZ, of Liege, thinks, concerning the passage of the microörganism from the mother to the fœtus, that it cannot filtrate through the placenta, but that for such transmission placentary lesions are necessary, lesions produced by the organisms themselves. When in malignant carbuncle, or chicken cholera, we find microorganisms in the fœtus of the inoculated animal, we find hemorrhagic lesions of the placenta, which is in accordance with Wyssokowitch's law—that is, that microorganisms can pass in the secreted fluids of the organism only if glandular lesions exist.

For the transmission of tuberculosis it is necessary that a small tubercle should break down, to enable the microbes to reach a fœtus. Such lesions, however, are very rare, as is general infection of the blood in tuberculosis; this condition is also rare, for the placenta is not favorable to the implantation of bacteria. When we speak of heredity of tuberculosis, we must have in view the fact that children of tubercular parents are more prone to the cultivation of the tubercle bacillus, and, in addition, are liable to infection, living with tubercular parents.

CONTAGION OF TUBERCULOSIS OF MAN TO CHICKENS.

M. CAGNY, of Senlis, presented the following interesting observation: on a farm a mother died of galloping consumption; her son, aged twenty-one, was also phthisical. He observed, also, that all the hens of the farm became thin, and when examined their livers were found filled with tubercles; the young man told him afterward that he was in the habit of spitting on the ground to see the hens run and pick it up. All the animals being then sacrificed and the poultry-yard well disinfected, no more tuberculosis was observed.

TUBERCULOSIS AND ARTHRITISM.

M. JONESCO, of Paris, stated that at the recent Congress of Surgery M. Peyrot and himself called attention to a tubercular paronychia on a rhumatoid nodosity. M. Verneuil remarked the rarity of the combination of the two diseases. He presented to-day another observation: a man, aged thirty, father tuberculous and mother rheumatic. Patient has had from his youth a number of attacks of articular rheumatism, the last ones having localized themselves in the lower extremities. He then married, had four children; three of them died of different tubercular manifestations; he is finally taken with hemoptysis and a fungous arthritis of the right knee. When he examined him, he had ankylosis of the right knee, and presented signs of tubercular arthritis of the left knee, and a tuberculization of the right upper lung. This rheumatism has probably created in his articulations a "locus minoris resistentiæ" for the penetration of the tubercle bacilli; it is in that manner that we can explain the combination of these two diseases.

M. VERNEUIL said that arthritism and tuberculosis are rarely associated, but we can find a sort of morbid hybrid state between the two diseases; this combination can usually be explained by heredity, the father suffering from one affection, the mother having the other. The same with anthrax; it is very rare to find it on scrofulous patients, and when they are associated it is usually found that one of the parents is arthritic, while the other is tuberculous.

MICRO-POLYADENOPATHY OF CHILDREN.

M. LEGROUX, of Paris, said that we all know of these small enlargements of the lympathic glands, which are commonly found in the neck of children, especially those living in places where hygienic conditions are wanting. To this lesion he had given the name of infantile micro-polyadenopathy. The inflamed glands are particularly situated at the neck and can be attributed to dentition, or the lympathic state. They are movable and painless; they are also found in the axilla, inguinal region, etc.; they may disappear with the advance of age, but are also frequently followed by variable accidents. They are found in children presenting tuberculous manifestations. If such children die of measles, for instance, we often find caseous tracheo-bronchial glands, or latent tubercular pleurisy, or peritonitis. If meningitis appears and this polyadenitis exists, we are able to affirm a tubercular meningitis.

M. DAREMBERG, of Cannes, had seen, on several occasions, this specific polyadenopathy in relation with tubercular tonsils; this tubercular tonsillitis is easily produced by the cohabitation of the children of tubercular patients.

NATURE OF THE ATYPICAL VARIETIES OF LUPUS VULGARIS.

M. LELOIR, of Lille, said that the classical lupus is nothing else but a tuberculosis of the skin; but other varieties of this disease he had observed for several years, which were different in a clinical, as well as in an anatomico-pathological point of view.

Tubercular lupus has a vitreous, semi-opaque appearance, with, occasionally, small cysts having undergone colloid degeneration, and leaving small cavities. Section of these nodules shows cysts colored ochre-yellow by picro-carmine, with a vitreous appearance, and the characters of colloid degeneration; these cysts are the central part of the lupus nodules; they are surrounded by a mass of embryonal cells; this central portion sometimes contains giant-cells, and occasionally tubercular bacilli can be discovered; these nodules have hardly any bloodvessels.

From numerous inoculations he concludes that this variety of lupus is only an attenuated form of tubercle;

its relation to lupus vulgaris is the same as the colloid tuberculosis of the lung described by Grancher is to the ordinary tuberculosis of the same organ; this lupus could be called lupus vulgaris—colloid variety. Another variety of lupus presents a transparent, soft, gelatinous appearance, with a great number of small bloodvessels easily seen. On their surface we often see small cysts containing a mucous substance; these lupus tubercles lacerate easily.

In this variety the embryonic cells are irregularly distributed and not compact. The dermoid connective tissue is deeply involved, and the elastic tissue fibres have almost all disappeared. Colored with picro-carmine, the embryonal cells appear red, while the disease-germ is yellow. Some of these embryonal cells have undergone mucoid degeneration, and form little nodules, composed of four to eight cells; they agglomerate around the bloodvessels; very rarely do they form a mass of cells. In those nodules giant cells are extremely rare, and bacilli are only found in their immediate neighborhood. This tubercular lupus contains numerous dilated bloodvessels.

His experimental researches with fragments of these nodules led him to believe that this atypical lupus vulgaris is nothing else but an attenuated tuberculosis of the skin; that it is a mucoid variety of lupus.

Another variety of lupus, sclerotic lupus, is to the lupus vulgaris what fibroid tuberculosis of the lung is to tuberculosis vulgaris of the same organ.

Since 1882 he had made many inoculations. The date of the appearance of this experimental tuberculosis is later for the sclerotic lupus than for the vulgaris variety. Sclerotic lupus is, then, another variety of tuberculosis of the lung.

These three forms of lupus—colloid, mucoid and sclerotic or fibroid, are attenuated forms of the lupus vulgaris, because they contain very few bacilli.

SUPPURATIVE FORM OF TUBERCULAR LUPUS.

MM. HALLOPEAU and WICKHAM, of Paris, have observed a mixed cutaneous tuberculosis, presenting both gummata and suppurated lupus nodules.

In one case, following a horse-bite, it was difficult to differentiate it from chronic farcy; the question was decided by inoculations and cultures made by M. Nocard and themselves, giving negative results. The cause of the suppuration they attribute not to Koch's or pus microörganisms, but to the action of the substances produced by these microbes, such as leucomaines; such is the explanation they also give for the formation of the specific lesions of tuberculosis.

EVOLUTION AND THERAPEUTICS OF TUBERCULOSIS IN A HEALTHY MEDIUM.

M. CALMETTE, of St. Cyr, has studied the evolution of tuberculosis in an eminently healthy place. External manifestations of tuberculosis are rare. Frequently tubercular peritonitis and broncho-pneumonia are met with, also tuberculosis of the viscera; hence he insists on treating the intestinal canal antiseptically, and the substances he has found most efficient were the preparations of phosphorus associated with sea water. He gave daily 0.5 gramme of phosphoric oil (the phosphorated oil of the French Codex), composed as follows:

℞.—White phosphorus . . . 1 part.
Sweet almond oil . . . . 95 parts.
Officinal ether . . . . 4 "
Add the ether after cooling.

For *internal* administration the following is prepared:

℞.—Phosphorated oil . . . . 10 parts.
Sweet almond oil . . . . 90 "

or he gives the phosphate of zinc, in the dose of $\frac{1}{18}$ grain, at the same time prescribing two tumblerfuls of sea water.

ON THE EVOLUTION OF EXPERIMENTAL TUBERCULOSIS IN CHILDREN.

M. ARLOING said that he found it difficult to render the rabbit tuberculous. If he inoculated ten rabbits and ten guinea-pigs, he should find certain rabbits remain unaffected, while the guinea-pigs are all diseased; the guinea-pig can, then, be considered as a true reagent for the diagnosis of a questionable tubercular lesion. If we desire to know, without killing the animal, whether the inoculation gives a positive result, we can determine by ascertaining whether the neighboring lymphatic glands are involved. He has also observed that the spleen of the guinea-pig is early involved, while in the rabbit it takes place at a very late period; tuberculosis of the lung precedes that of the spleen in rabbits. As the spleen in guinea-pigs is so rapidly involved, he asked himself whether there could not exist a derivative lymphatic current to take the virus from the lower extremity to the spleen directly, without passing through the vena cava. The inoculations from the human lung to the rabbit give only a visceral tuberculosis, without involvement of the lymphatic glands of the inoculated extremity. While bovine tuberculosis appears very severe in the rabbit, he thinks that bovine tubercular virus presents a greater virulence than that of man.

M. NOCARD confirmed absolutely and on every point the opinions expressed by M. Arloing.

M. VALUDE, after an inoculation of two months' standing in rabbits, found only a few disseminated tubercles in the liver and kidneys, but rarely in the spleen or lung.

M. LELOIR has observed this perfect inoculation of the guinea-pig with lupus, but the inoculation must be made on the peritoneum and especially on the epiploon; if introduced in the cellular tissue, we may have negative results.

M. VERNEUIL also agreed on the fact, that to assure promptly and surely the diagnosis of tuberculosis, the guinea-pig is the animal to be chosen, and the abdomen must be the seat of the inoculation.

ACUTE INFECTUOUS TUBERCULOUS FEVER.

M. JEANNEL, of Toulouse, said that there are certain conditions which are mistaken for early symptoms of typhoid fever, but which are in reality the prodromic stage of a coming tuberculosis. It is a real febrile tuberculosis and the temperature chart only will differentiate it from typhoid fever. In tuberculous fever, the temperature curve ascends suddenly, to remain on the same level for some time, when it comes down to a lower level. Then, too, tuberculous fever is reduced rapidly by antipyrin in small and continuous doses, whereas this drug is of no great use in typhoid fever. M. Landouzy has

also studied and described previously this particular disease.

HEREDITY OF TUBERCULOSIS AND ITS SPREAD FROM ANIMAL TO ANIMAL.

M. BANG, of Copenhagen, claims that heredity of tuberculosis in animals is rare; he consulted 165 veterinary surgeons and only 32 asserted that they had found tuberculosis in newborn calves, and these calves were sufficiently fat not to be suspected of tuberculosis.

M. THIERRY, of Auxerre, related the case of a stable where all the cows became tuberculous; it was ascertained that they all took their food from the same bucket, which probably contained the specific microbes, for its removal coincided with the disappearance of the disease.

M. VAN HERSTEN, of Brussels, mentioned the fact that in Belgium the number of tubercular cows is very large while the number of diseased calves is very small, only 1 calf out of 650, while 1 cow in 100 is tuberculous, which proves that tuberculosis is not so often hereditary and that the disease develops in the later part of life.

CORRESPONDENCE.

SOME GLIMPSES OF BRITISH SURGERY.

To the Editor of THE MEDICAL NEWS,

SIR: During a stay of some weeks in Great Britain I have had opportunities of visiting some of the best known surgeons and of observing their methods of work, many of which seem to me worthy of mention.

In Glasgow I had the pleasure of spending a few hours with Mr. Macewen, in the wards of the Glasgow Royal Infirmary, and was especially interested in the case, which he has reported in his paper on the Osteogenesis of Bone, of almost complete reformation of the humerus, after a crushing accident of unusual extent and severity. Most of the bone was lost at the time of the accident, and the fragments which remained were torn from their connection with the periosteum. They were reimplanted in the soft tissues and served as foci for a new formation, which has now given the lad a useful limb.

Two cases of the radical cure of hernia were in the ward, in the early stages of convalescence,—too early to permit of definite judgment as to the final result. Mr. Macewen's faith in the superiority of his method over other operative procedures in these cases remains undiminished, and he kindly spent some time in explaining to me, with the aid of models and specimens, the smaller details of his plan. An interesting specimen, taken from a patient upon whom he had performed the operation for radical cure, some years ago, and who had recently died of acute disease, showed the entire obliteration of the internal ring and the associated pouch of peritoneum, which is aimed at by Macewen's operation. The thickening caused by the sac folded upon itself and placed within the ring was still perceptible. Macewen pays comparatively little attention to the canal itself and to the external ring, believing that the permanency of result, which is the object aimed at, can only be obtained by the more or less perfect closure of the internal ring and the fortification of the adjoining parts.

There was walking about the ward an interesting case of recent trephining for cerebral abscess, depending upon otitis media and diagnosed by cerebral localization.

At the London Hospital, with Mr. Frederick Treves, I saw a case of pancreatic cyst which had been tapped and evacuated a few days previously, the contents measuring one and a half gallons. The operation was undertaken for a supposed sarcomatous tumor, and Mr. Treves remarked that, among the sixteen cases which he had been able to collect, there was not one in which the diagnosis had been made prior to operation. Two cases, however, were reported in the *Chicago Medical Journal* during the early part of the present year, in which, if I am not mistaken, such a diagnosis had been made, in one case by Dr. Fenger, in the other by Dr. Steele.

In showing a case of hydrocele, Mr. Treves alluded to the treatment by injection of iodine as extremely unsatisfactory, remarking that there were at least 30 per cent of failures, but adding that, in many cases, this was due to the employment of an insufficient quantity of the tincture. If he had said that, in nearly every case of failure, the cause was to be sought in this direction, his statement would have been more in accord with our Philadelphia experience. In many dozens of cases of this character upon which I have operated, or which I have observed in the practice of Dr. Agnew, or of my colleagues, I do not remember a half dozen failures where any attention was paid to proportioning the quantity of iodine employed to the size of the sac.

Mr. Treves treats all his compound fractures in the open air, according to the following plan: When the case is admitted to the hospital, the wound and surrounding part are cleansed, but no attempt is made to arrest the oozing of blood, which, in the great majority of these cases, is still going on. Iodoform is sprinkled in large quantities and at short intervals over the wound and adjoining parts, and this is continued sometimes for two or three days. At the end of that time a scab has formed, beneath which, Mr. Treves claims, cicatrization and repair take place in the most perfect aseptic manner. The infiltration of the muscles and connective tissue, which sometimes follows the sealing of the wound in compound fracture, while oozing is still going on, is thus avoided, and with the least possible disturbance of the parts. During the entire course of the case, the affected limb, with the necessary fixation apparatus, is kept uncovered, Mr. Treves believing that the atmosphere which surrounds such a part beneath the bed-clothes is much more likely to be septic than the general atmosphere of the ward. His results in a number of cases certainly seem to justify his confidence in this method, an elevation of temperature of even a degree being almost unknown.

I saw some excellent results in cases of extensive lacerated wounds and crushes involving joints, obtained by the unusually free use of irrigation. Instead of the usual drip, a stream of water of considerable size, almost as large as a little finger, is kept running over or through the injured part for long periods, with the result, in at least three cases which I saw, of preserving limbs and joints which would have ordinarily undergone amputation or excision. The irrigating apparatus, so far as the supply is concerned, is directly connected with the general plumbing of the hospital, and arrangements for carrying off the waste are just being made. I have long

been familiar with the excellent results obtained in similar cases by our own method, but would now feel inclined to try Mr. Treves's plan in cases of greater severity.

I saw many other interesting cases, among them one of hysterectomy, for a fibroid weighing twenty-two and a half pounds, accompanied with the removal of both ovaries and appendages, but have not time to describe them.

At the Children's Hospital, Great Ormonde Street, built on the site of a house formerly occupied by Lord Macaulay, I was greatly interested in the wards and the work of Mr. Edmund Owen. In a double osteotomy for outcurving tibiæ the operation was performed by the open method, the bones being divided with a saw. As Mr. Owen remarked, operations with the chisel in this region are apt to be practically open ones, even although the attempt is made to render them subcutaneous, and the use of the saw makes the whole operation so much easier and more rapid in execution. An excision of the shoulder-joint for caries was performed by him in a masterly manner, removal of the head of the bone occupying less than five minutes from the time of the first incision through the soft parts, and the whole operation, including the dressing, being completed inside of twenty minutes. A number of interesting cases of tenotomy, osteotomy and excision were convalescent in the pretty little ward which, although it was built twenty-five years ago, has hard wood floors and glazed brick walls and most admirable provision for light and ventilation.

The great prevalence of rickets in this country, as compared with our own, is quite apparent in the service of this, as of all the other London hospitals, nor does it seem to be confined to the large cities. Professor Humphrey, at Cambridge, called my attention to the number of cases of this sort which he treated in his outpatient service, which is derived largely from an agricultural population. He believes that the majority of such cases outgrow the deformity, as is shown by the comparatively small number of adults who are so affected. In deformities of a sufficient degree to require treatment, Mr. Owen greatly prefers operative measures to the use of apparatus, which he has found tedious and, in the main, unsatisfactory. Among his ward cases I saw one of reoperation for club-foot (the first operation having been performed by another surgeon), in which Mr. Owens had used the method recommended by Dr. Willard, of Philadelphia, and of which he spoke very highly.

A day or two ago I was present, by invitation of Sir Spencer Wells, at a private ovariotomy, which was particularly interesting as being the second one performed by him upon the same patient. The first operation, done in 1864, will be found reported in his series of cases as No. 94. The left ovary was then removed for cystic disease, the pedicle being treated by the clamp method then in vogue. The patient at that time was forty years of age. Now, at the age of sixty-four, a large multilocular cyst had formed in connection with the right ovary. The operation was done with the most careful antiseptic precautions and under the spray. A short incision was made through the scarcely discernible scar of the old operation, the pedicle of the former tumor being found attached to the abdominal wall a little to the left of the median line. One of the loculi of the cyst was tapped, reducing its size sufficiently to permit of its easy extraction. The pedicle was long and slightly twisted. It was ligatured first in two portions by transfixion, and then the whole mass was included in a second single ligature. The operation was done with extreme dexterity, as might be expected, but with apparent deliberation; it was, however, completed, including the stitching and dressing, in about fifteen minutes from the time the first incision was made. Sir Spencer was ably assisted by Mr. Meredith, one of the rising men in this line of work in London, who comes from an old and well-known Philadelphia family, although he has lived abroad almost all his life. Sir Spencer Wells shows no abatement in his outspoken opposition to the somewhat indiscriminate ovarian surgery of the present day, and believes that many hundreds of unnecessary and unjustifiable operations are now being performed,—operations which will not bear the test of time or further experience.

The anæsthetic employed during the operation was methylene, of which certainly not more than two or three drachms were used. There was no apparent period of excitement, the patient came rapidly under its influence and almost as rapidly recovered consciousness, and there were no alarming symptoms of any sort. It was administered by Dr. Day, one of the physicians to the Samaritan Hospital, who has given it in between twelve hundred and thirteen hundred cases, and without difficulty of any kind. The color of the face and the character of the respiration are his guide, no attention being paid to the pulse. I see that he has reported, in the *British Medical Journal* of July 14th, the interesting fact that twelve drachms is the largest quantity he has ever administered for an operation lasting one hour, and that Sir Spencer Wells has never occupied a longer time than this for even his worst operations, including nephrectomies, hysterectomies and all the various forms of abdominal tumors, with and without complications. This statement was afterward confirmed by Sir Spencer Wells, in a conversation with me at his office, and includes a recent case of splenectomy, which recovered without a bad symptom.

My most interesting time in London has been spent in the wards and the operating theatre of Sir Joseph Lister, and I regret that I can scarcely do more than allude to the many interesting and remarkable cases which I have there seen. The admiration which I already felt for the man who has done more to advance surgery, to make it an exact science, and to lessen the sum total of human suffering than any other individual in the history of our profession, has increased by personal acquaintance with him. Like all the other truly great men whom I have ever had the good fortune to meet, he is perfectly simple and unassuming in his manner and very approachable by any one who comes to him with a desire to learn. As a teacher, he is clear and, at the same time, comprehensive, speaking in an ordinary quiet, conversational tone, saying but little during the actual progress of an operation, but explaining in advance, with great care, the indications for it, the particular method which he intends to employ, and his reasons for its selection. As an operator, he is deliberate, but very neat and accurate in all his work with the knife, wasting no time whatever, but sacrificing nothing for the sake of brilliancy. It is scarcely necessary to say that in all his work, from the preliminary preparation to the final dressing, the most

minute and scrupulous attention is paid to antiseptic details—to the arrest of hemorrhage, to the provision for drainage, to the approximation of the wound without tension. His views as to the importance of all of these points have been fully and frequently described by himself and his followers.

As his antiseptic methods are constantly undergoing modification in his efforts to find the typically perfect antiseptic dresssing, which shall be at once cheap, soft and pliable, non-irritating, yet permanently active, it may be worth while to mention the details of his present method. The skin is cleaned with a 1:20 solution of carbolic acid in a 1:500 solution of bichloride, the carbolic acid, by its affinity for oily matters, carrying the more active mercurial solution into the recesses of the skin, the mixture being much more potent than either the carbolic or bichloride solutions separately. Next to the wound, in place of the old silk protective, is laid a piece of gauze which originally contained Sal Alembroth, the latter ingredient being, however, first washed out of it in a 1:20 carbolic solution; this is with the idea of protecting the edges of the wound from permanent contact with the mercurial salt, which is more or less irritating. The carbolic in the piece of gauze, soon disappearing, leaves an aseptic covering directly in contact with the edges of the wound. Over this is applied a much larger dressing, consisting of from eight to sixteen layers of gauze wrung out of a solution of bichloride (1:4000), and over this numerous layers (eight to twenty) of gauze containing 3 or 4 per cent., by weight, of the biniodide of mercury. This salt, which is the latest antiseptic used by Lister and with which he is now experimenting, is comparatively insoluble, requiring 6000 parts of water, by weight, to dissolve it, although it is freely soluble in 200 parts of blood serum. The latter solution retains the most active antiseptic qualities. Its permanency and insolubility render it particularly valuable by lessening the probability of its being washed out of the dressings by the discharges. It is, however, extremely irritating, and not only the wound, but also the skin and surrounding parts must be carefully protected from contact with it by the interposition of the damp bichloride gauze already spoken of. It was interesting to see that, even in dressings which had remained *in situ* for a week or more, and had been thoroughly soaked for that time in the wound discharges, the portion of gauze from which the red color of the biniodide had been thus washed out would still promptly give the characteristic reaction with sulphide of ammonium, indicating the presence of the salt in sufficient quantity to preserve the antiseptic property of the dressing. Over this, without the interposition of any layer of mackintosh, is placed the antiseptic bandage or cloth, made of the same gauze, soaked and dried in a 1:4000 bichloride solution, which serves to retain the dressings in place.

Sir Joseph is not yet prepared to publish the details of this method, and, with characteristic caution, is waiting until he has employed it in a sufficient number of cases to discover all its possible defects, and to test thoroughly and completely its full antiseptic value. I was greatly interested in observing his attention to even the smallest details connected with this method. As he went through the ward, dressing all the important cases himself, each portion of the gauze, as it was removed, was carefully inspected by him, the discolored or bleached areas tested with sulphide of ammonium, and any unusual stain or hue carefully noted. On each occasion that I have been with him he has spent from two to four hours in his wards, but the results there obtained amply justify the time and care which he bestows upon his patients.

In an excision of the breast for carcinoma, the patient being a large, fleshy woman, and the tumor of unusual size, I saw the whole of the large operating wound, including that made in cleaning out the axilla, united throughout almost its entire length by first intention at the end of six days. I noted that, in dressing this case, no effort was made to make pressure upon the flap, and that the arm of the affected side was included in the dressings, the bulk of which were placed behind it, near the posterior aperture, for drainage. A broad band loosely applied, and a large piece of antiseptic gauze, also applied very loosely, completed the dressing, which at no time gave the patient the slightest pain or inconvenience. I have been accustomed, in dressing these cases, to apply the antiseptic roller with considerable firmness, with the idea of arresting any possible consecutive oozing and of promoting a rapid union of the flaps to the subjacent parts; but I shall certainly feel inclined in the future to apply looser dressings. Sir Joseph says, "When the patient is uncomfortable, you may be sure there is something wrong with the dressing."

There were in the wards two cases of ununited fracture of the patella, recently operated upon. In one case (a very large, powerful man), in which the lower fragment had been extremely small, Sir Joseph made passive motion for the first time at the end of the sixteenth day, explaining that he would have done so earlier if it had not been for the disproportion between the two fragments rendering the hold of the wire upon the lower one more insecure than usual. In the other case, which was of considerable standing before the operation, he had been unable to secure approximation of the fragments without incision of the quadriceps, which was much shortened. He elongated it by the method devised by his former pupil, Dr. Cameron, of Glasgow, which consists in first freeing the under surface of the muscle from the bone by means of a blunt instrument introduced beneath the upper fragment of the patella, and then incising obliquely the muscle itself at two places, the cuts beginning at the inner and outer edges, a short distance above the patella, and running parallel with each other nearly to the opposite edge, and extending through the entire thickness of the muscle. This permits of great elongation, without completely dissevering the continuity of the quadriceps. In this case, six days after the operation, on account of the restlessness and intractability of the patient, muscular spasm occurred, followed by extensive oozing from these cut surfaces. A large clot formed, producing considerable tension, necessitating the removal of the stitches, and causing at two points a slight separation of the edges of the wound. I watched this for ten days, and instead of the flush, the suppuration, the elevation of temperature and the alarming symptoms which would usually follow such a hemorrhage into and about a great joint, the patient and the limb both remained perfectly passive, with absolutely no sign of either local or constitutional irritation, while the clot itself gradually contracted and the knee resumed its normal outline. During all this time there was literally not one drop of pus and not a trace of offensive odor.

A severer test of Professor Lister's antiseptic methods could hardly be devised or imagined.

One of the most striking cases which I saw was an operation for the relief of the deformity caused by badly treated Pott's fracture. The fibula had been broken at the usual point, and there had also been a fracture through the base of the internal malleolus; the foot was so greatly everted that the limb was absolutely useless to the patient; this condition had persisted for more than a year. At the operation, the soft parts were turned forward down to the bone by an incision following the posterior border of the fibula and of the external malleolus; the fibula was divided at the point of fracture, the triangular space existing between the lower edge of the tibia and fibula, which was filled up with fibrous material of almost bony hardness, was cleared with the gouge, chisel and sharp spoon; the soft parts over the internal malleolus were then turned forward by a similar incision, and the mass of new bone, which was easily recognized, and which filled up the gap between the two fragments of the malleolus, was chiselled away. After this, the application of considerable force by means of pulleys brought the foot suddenly, but perfectly, into position. The subsequent course of the case was absolutely uncomplicated, and the patient, at the end of three weeks, already had considerable motion without pain in the ankle joint.

In another patient, an anterior luxation of the radius of one year's standing, rendering the elbow joint almost useless, was cut down upon and reduced. An excision of the elbow for strumous disease; an excision of the knee for gelatinous arthritis, with most extensive caries of the bones; a case of angular deformity of the femur, with great shortening, were all operated upon successfully. That is to say, at the end of from two to three weeks the limbs were in perfect position, the patients were entirely comfortable, and there had been neither suppuration, hemorrhage nor fever.

In a case of strumous abscess, and in another of empyema, Lister employed the injection of iodoform and glycerin (1 : 10) recommended bv Billroth, and in another case of psoas abscess, containing twenty-five ounces of pus, he used the largest amount of the iodoform emulsion which he has ever employed—three ounces. In the case of the abscesses, the cavities were first washed out with a 1 : 100 carbolic solution, after which the iodoform was injected and retained, antiseptic gauze being fastened by collodion over the trocar puncture. The empyema occupied the entire right chest of a feeble infant, who had been previously aspirated; the pus was thick and curdy, and would not run through the trocar until a watery solution of bichloride (1 : 4000) had been forcibly injected; after that a large quantity was evacuated. The opening through the skin was made with a knife, and was rendered valvular by first displacing the skin from over the site of intended tapping. A half ounce of the iodoform mixture was used, the canula was surrounded with wet gauze during its withdrawal, the puncture was closed with sal alembroth gauze held down by collodion. The child was inverted and rolled from side to side for the purpose of diffusing the iodoform thoroughly through the abscess cavity.

In a case of extremely large ranula, which had been operated upon outside of the hospital by laying open the sac, the latter was carefully and completely dissected out by Lister, and proved to be dermoid in its origin. He remarked that in such cases, in which full antiseptic treatment is impossible, the wound being exposed to contact with the septic saliva, chloride of zinc (forty grains to the ounce) and iodoform are of the greatest advantage in preventing putrefaction for the first two or three days, a most important period, both because the freshly wounded tissues are then most susceptible to putrefactive irritation, and because they are at that time most actively absorbent.

I saw many other cases with Sir Joseph, but for want of time must reserve them for another letter. In his personal and home life he is as attractive as in his hospital wards. Among the many interesting anecdotes which I had the pleasure of hearing at his dinner table were two about his father-in-law, the great surgeon, Mr. Syme, which seem worthy of being recorded in a letter upon surgical topics. At the time Sir Joseph was making his earliest experiments in relation to the germ theory of putrefaction, he asked Mr. Syme, then in his sixty-fifth year, to observe the result of one of them, the now well-known method of preventing decomposition of animal fluids by the simple plan of allowing the atmosphere to gain access to them (after they have been boiled) through a glass tube which has been drawn out in curves. Of course, we all understand now that the preservation of the fluid under these circumstances depends upon the deposit, in the lower portion of these curves, of the atmospheric dust and germs as the air enters. Mr. Syme took in the whole importance of the great natural law thus illustrated at a glance, and said that, although he would be deeply interested in further experiments, he needed nothing more to convince him. I told Sir Joseph that we had an equally conspicuous example, in America, of willingness to learn and practise new methods after the age of sixty, and he knew at once to whom I referred, and cordially agreed with me.

The other anecdote to which I referred was elicited by my remark that the advances of surgery in the past twenty years made many of the younger men of the present day feel as though there were but little left for them to do. Sir Joseph told me that in his very earliest days in Edinburgh, when he was still uncertain whether to remain there or to begin his work elsewhere, he consulted Mr. Syme. The latter told him that he would probably do well to stay there, but remarked, in almost the same words I have used above, that it really seemed as though there were not much left to do in the way of advancing surgical science, little thinking at the time that the young man he was talking to, his future son-in-law, would almost alone and unaided effect the greatest revolution in surgery, and bring about the greatest step in advance, which has been made since Harvey discovered the circulation of the blood. Lady Lister, as might be expected, takes an interest in all surgical topics, and especially in those connected with antiseptic work, which is only second to that of Sir Joseph himself.

The kindness and courtesy with which all the London surgeons treat their professional brethren from America is already well known, but I desire to add my testimony to the same effect, and to record the gratification with which I found that men like Lister and Wells (to say nothing of their younger, but almost equally busy confrères) were willing to give up so much of their valuable time to strangers, whose only claim upon them lies in

their desire to learn whatever may benefit the sick or injured under their care. J. WILLIAM WHITE.

LONDON, July 27, 1888

NEWS ITEMS.

The Congress of American Physicians and Surgeons, Washington, September 18–20, 1888.

The American Dermatological Association announces the following programme:

Address, by the President, I. E. Atkinson, M.D.

The Electrolytic Decomposition of Organic Tissues, by G. H. Rohé, M.D.

The Value of Salicylic Acid in Dermatology, by C. Heitzmann, M.D.

Hereditary Dermatoses, by J. C. White, M.D.

A Report of Four Cases of Dermatitis Herpetiformis, by J. E. Graham, M.D.

Dermatitis Herpetiformis, with Notes of Three Cases, by H. W. Stelwagon, M.D.

Personal Observations on Skin Diseases in the Negro, by R. B. Morison, M.D.

Note of a case of Filaria Medinensis, by A. Van Harlingen, M.D.

So-called Acne Anthracoide Iodopotassique, by R. W. Taylor, M.D.

Note Relative to the Vegetative Lesions induced by Ingestion of some of the Iodine Compounds, by J. N. Hyde, M.D.

Notes on some Unusual Cases of Skin Disease, by W. A. Hardaway, M.D.

A Contribution to the Clinical History of Alopecia Areata, by A. Van Harlingen, M.D.

The Non-identity of Lichen Planus and Lichen Ruber, by G. H. Fox, M.D.

The Question of Relationship between Lichen Ruber (Hebra) and Lichen Planus (Wilson), by A. R. Robinson, M.D.

Multiple Pigmentary Sarcoma, by E. B. Bronson, M.D.

Dermatitis Plantaris and Palmaris, by L. Duncan Bulkley, M.D.

Raynaud's Disease and Symmetrical Gangrene in late Syphilis, by R. W. Taylor, M.D.

The Relations of Frambœsia to Syphilis and Tuberculosis of the Skin, with Report of a Case, by P. A. Morrow, M.D.

Kraurosis of the Vulva (Breisky), by C. Heitzmann, M.D.

Molluscum Contagiosum, a Clinical Report, by H. W. Stelwagon, M.D.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUGUST 14 TO AUGUST 20, 1888.

SUTHERLAND, CHARLES, *Colonel and Medical Director.*—Directed to inspect the Medical Department of Forts Brady, Mackinac and Wayne, Michigan; Forts Porter, Niagara and Ontario, New York; Madison Barracks and Plattsburg Barracks, New York; Fort Preble, Me; Fort Warren, Mass.; Fort Adams, R. I., and Fort Trumbull, Conn.—Par. 7, *S. O. 168, Division of the Atlantic,* August 16, 1888.

JANEWAY, JOHN H., *Major and Surgeon* (U. S. Army)—Granted leave of absence for one month, on surgeon's certificate of disability.—Par. 2, *Special Orders No. 41, Division of the Pacific,* August 8, 1888.

BROWN, HARVEY E., *Major and Surgeon* (U. S. Army).—Upon being relieved by Captain and Assistant Surgeon William C. Gorgas, to proceed to his proper station, Jackson Barracks, New Orleans, La., reporting in person to the commanding officer of that post for duty.—Par. 8, *S. O. 187, A. G. O.,* August 14, 1888.

TORNEY, GEORGE H., *Captain and Assistant Surgeon* (U. S. Army).—To proceed to St. Augustine, Fla., via Palatka, accompanying the U. S. Troops thereat to Huntsville, Ala., as Medical Officer, and thereafter return to his proper station (Fort Monroe, Va.).—Par. 4, *S. O. 165, Division of the Atlantic,* August 13, 1888.

GORGAS, WILLIAM C., *Captain and Assistant Surgeon* (U. S. Army).—Leave of absence granted in S. O. 177, A. G. O., August 1, 1888, revoked, and ordered to proceed to Camp Monte Sano, Huntsville, Alabama, and report in person to the commanding officer there for duty, relieving Major and Surgeon Harvey E. Brown.—Par. 8, *S. O. 187, A. G. O.,* August 14, 1888.

WOOD, LEONARD, *Assistant Surgeon* (U. S. Army).—To proceed from Fort McDowell to San Carlos, Arizona Territory, and carry out the instructions of the Department Commander. Upon completion of that duty, to return to his proper station.—*S. O. 89, Department of Arizona,* August 1, 1888.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY, FOR THE WEEK ENDING AUGUST 18, 1888.

FEREBER, N. M., *Surgeon*—Detached from the "Franklin," and ordered to the Marine Hospital, Norfolk, Va.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FOR THE TWO WEEKS ENDING AUGUST 13, 1888.

PURVIANCE, GEORGE, *Surgeon*—Granted leave of absence for thirty days, August 13, 1888.

SAWTELLE, H. W., *Surgeon.*—Detailed as a member of the Board to select a site for a quarantine station at San Diego, Cal., August 6, 1888.

GOLDSBOROUGH, C. G., *Surgeon.*—Granted leave of absence for thirty days, August 10, 1888

GUITÉRAS, JOHN, *Passed Assistant Surgeon.*—To proceed to Sanford and Jacksonville, Fla., and Way Cross and Dupont, Ga., on special duty, August 1, 6, 9 and 10, 1888.

BANKS, C. E., *Passed Assistant Surgeon.*—Granted leave of absence for four days, August 6 to 9, 1888.

PECKHAM, C. T., *Passed Assistant Surgeon*—Granted leave of absence for thirty days, August 10, 1888.

URQUHART, F. M., *Passed Assistant Surgeon.*—To proceed to Way Cross Ga., on special duty, August 9, 1888.

GLENNAR, A. H., *Passed Assistant Surgeon.*—Detailed as a member of the Board to seclect a site for a quarantine station at Port Townsend, Washington Territory, August 6, 1888.

WASDIN, EUGENE, *Passed Assistant Surgeon.*—Detailed as a member of the Board to select a site for a quarantine station at Key West, Fla, August 6, 1888.

WILLIAMS, L. L., *Passed Assistant Surgeon.*—Granted leave of absence for fifteen days, on account of sickness, August 10, 1888.

STONER, J. B., *Assistant Surgeon.*—To proceed to Norfolk, Va., for temporary duty, August 9, 1888.

THE MEDICAL NEWS *will be pleased to receive early intelligence of local events of general medical interest, or of matters which it is desirable to bring to the notice of the profession.*

Local papers containing reports or news items should be marked. Letters, whether written for publication or private information, must be authenticated by the names and addresses of their writers—of course not necessarily for publication.

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